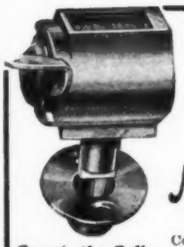
Telephony

THE AMERICAN TELEPHONE JOURNAL

PUBLISHED EVERY WEEK
BY TELEPHONY PUBLISHING CORP.
116 S. MICHIGAN AVE., CHICAGO, ILL.

SEPTEMBER 4, 1920. [Vol. 79. No. 10.]
Entered as second-class matter Sept. 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

SINGLE COPIES, 10 CENTS
YEARLY, U. S. A., $3; CANADA, $4
ALL OTHER COUNTRIES, $5



Keeping account of calls handled daily means keeping informed on traffic tendencies—keeping ahead of service requirements.

Veeder

Counters—attached to the keyboards—enable you to take periodic counts, give you data for forehanded management and show you the volume handled by each operator.

Send for booklet

Counts the Calls

Sets into permanent socket in the keyboard; registers one for each pressure of the thumb lever.

Veeder Mfg. Co., 11 Sergeant St., Hartford, Conn.

When buying a toll timing device, get the best

The CALCULAGRAPH is the standard timing meter of the telephone world.

Its construction embodies all the quality of a high grade chronometer. It is made to give accurate service for a long period. The first cost of a CALCULAGRAPH is quickly forgotten—it soon pays for itself.

Write for literature.

Calculagraph Company

Dept. 16 — 30 Church St., New York

American Steel & Wire Co.'s

W & M Telephone Telegraph Wire

Strand—STEEL WIRE

Pole Steps

Descriptive literature—free

American Steel & Wire Company

Chicago
New York

EVERSTICK ANCHORS

lead the world in anchor sales.

WHY?

EVERSTICK Anchor Co.
St. Louis, Mo. U. S. A.

CEDAR POLES

Wire or write for delivered prices

NATIONAL POLE CO.
ESCANABA :: :: MICH.

220 Broadway, New York
1944 Summit Street, Toledo, Ohio
Rialto Building, San Francisco

HUBBARD POLE LINE HARDWARE

includes every piece of hardware for pole line construction. Made of open hearth steel, double hot galvanized, rigidly inspected. Hubbard Hardware has become the standard by which all hardware is judged. Ask your jobber.

Hubbard & Co., Pittsburg, Pa.

The Hardware makes the line
Hubbard makes the Hardware

No. 2521 The Standard
Patented Nov. 15th, 1904 and June 27th, 1916

FRANKEL TESTING CLIPS

make positive test connections in ten seconds! Just snap the clip over the line—the sharp point pierces the insulation and the connection is instantly made.

Order from your supply house.
Booklet on request.

MAKERS OF THE BEST ONLY
FRANKEL
CONNECTOR CO. INC. N.Y.

Outpulls the Deadman

FAULTLESS POLE GUY ANCHORS

FAULTLESS ANCHOR & MFG. CO.

Write for literature and prices.

Centerburg, Ohio

Telephone Cables

ALL SIZES AND CAPACITIES

Hard Drawn Copper Telephone Wire
Galvanized Iron Telephone Wire
Siemens-Martin and High Strength Strands

AMERICAN ELECTRICAL WORKS
PHILLIPSDALE, R. I.

CHICAGO—112 W. Adams St.
CINCINNATI—Traction Bldg.
NEW YORK—233 Broadway
BOSTON—176 Federal St.

All 5, 6 and 7 in.

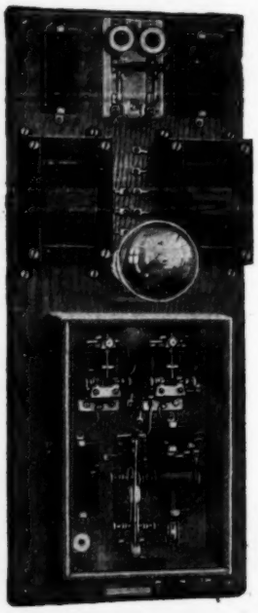
MATTHEWS SCRULIX ANCHORS

are now equipped with

THIMPULEYES

The SIZE is on the Eyes

W. N. MATTHEWS & BRO., Inc.
St. Louis, Mo.



"7-A Frequency Converter"

The Most Dependable and Economical Way to Do Your Ringing

is with the

LEICH Frequency Converter

Ring all your telephones at a cost of 30 to 75 cents per month.

Free From All Patent Infringements

LEICH ELECTRIC CO.

Telephones, Switchboards, Accessories

GENOA, ILLINOIS

DISTRIBUTORS

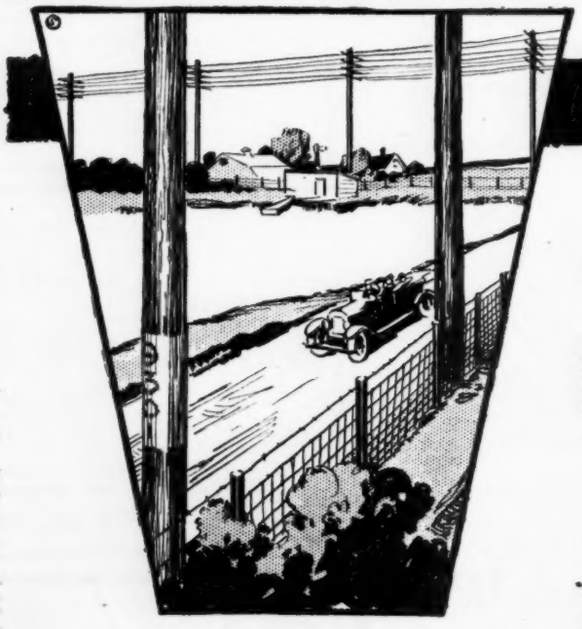
ELECTRIC APPLIANCE COMPANY
Chicago, Dallas, San Francisco, New Orleans

ST. PAUL ELECTRIC CO.
St. Paul, Minn.

POST GLOVER ELECTRIC CO.
Cincinnati Ohio

TELEPHONE & ELECTRIC SUPPLY CO.
Spokane, Wash.

B-R ELECTRIC COMPANY
Kansas City, Mo.



Poles of Permanence

LONG-BELL Creosoted Yellow Pine Telephone Poles stand strong and serviceable long after ordinary untreated poles have been destroyed.

LONG-BELL
Creosoted Poles

The sapwood of each pole is thoroughly saturated with Creosote (Dead Oil of Coal Tar), rendering these poles decay and fire resistant. Repairs and replacements are seldom necessary.

Wire or write us for full information and prices.

The Long-Bell Lumber Company

DEPT. 14 R. A. LONG BLDG. KANSAS CITY, MO.

Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves.

PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP.
116 S. Michigan Ave., Chicago

H. D. FARGO, President and Treasurer. S. R. EDWARDS, Secretary and Editor. J. R. HASTIE, Vice-President and Advertising Manager
G. M. ALLEN, Mgr., Copy Department. L. M. PETERSON, Assistant Editor S. J. BORCHERS, Assistant Advertising Manager.

Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

Volume 79
Number 10

CHICAGO, SATURDAY, SEPTEMBER 4, 1920

Subscription—10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

CURRENT OPINIONS AND COMMENTS

In New York state the question of telephone rates is again up before the public . The New York Telephone Co. uses a state-wide method of fixing rates and contends that this method is very much in the interest of the public.

Some of the municipalities affected by the recently announced state-wide increase in telephone rates, favor an entirely different method. They believe that each local service area should be treated as a separate unit and that the most important factor in establishing rates for such a segregated area should be the amount of revenue required to operate and maintain the service and produce a fair return on the value of the property in the segregated area. In other words, they believe in the locally-owned and operated company.

* * * *

The Bell company sets forth that this plan would mean much higher rates for service in many communities and fewer subscribers in those communities as a consequence, and that in some areas it would mean curtailment of necessary development and might even necessitate suspension of service.

The less prosperous areas, it contends, could not afford modern equipment and even if a slight reduction in rates in the denser areas were possible, this saving could not begin to counterbalance the effect of curtailed development of service in the state as a whole.

Independent telephone companies, generally, due to the conditions under which they are organized, have used the first-mentioned method of making rates while the Bell companies have generally followed the latter plan. It will be interesting to watch the outcome of the fight on the increased rates in New York state.

* * * *

No criticism can be made of the sound common sense of the decision of the Iowa Supreme Court, reported on another page by Secretary Deering of the Iowa Independent Telephone Association. The court held in effect that the section in a street railway franchise limiting rates of fare is null and void for the plain reason that it is impossible to fix rates for a period of 20 or 25 years that would be fair to both sides.

While the case specifically refers to a traction company, the principle will apply to all public utilities, and many Independent telephone companies in Iowa operating under a franchise granted by a municipality, should profit by the ruling.

It cannot be denied by any one that rates which were equitable ten years ago, or even five years ago, are wholly inadequate today on account of climbing costs. While the court said "fair to both sides," it is apparent that the only movement in rates must be upward in order to keep pace with the H. C. L.

* * * *

"We never miss the water till the stream runs dry," was the refrain of an old song, which emphasized the fact that we are prone not to appreciate our blessings adequately until we are deprived of them.

This applies to telephone service with a marked significance as is indicated by the case of a Kentucky farmer who is suing a telephone company for damages for failure to give him service. He complains that he lost $2,000 on his tobacco crop because, lacking a telephone, he couldn't keep in touch with market quotations. Some idea of the value he puts on telephone service may be derived from the fact that he seeks to recover $100 a month for every month he was without a telephone.

Telephone managers in rural districts no doubt will be flattered by this high estimate placed on their service, but it is equally probable that they will recall how hard it frequently is to induce the user of a farm telephone to pay a decent rental. When the average farmer is asked to pay more than a dollar a month rental, he usually emits a roar of protest that would convince the listener he was being robbed of his last cent.

The Kentucky case throws a light on a concrete example of just how important telephone service can be if properly utilized on the farm. It also ought to influence the rural subscriber to be more generous when the company asks for a needed raise in rates.

* * * *

Another rate-making commission has gone on record to the effect that it is better to increase rates than to allow service to fall down. The Board of Public Utility Commissioners of New Jersey

awarded increased compensation to a telephone company in that state, and in its order held that it was "the duty of the commission in the performance of the best public service to permit the company to increase its rates rather than deprive the communities involved of any service whatever by telephone."

If commissioners are public servants, surely they can render the public no better service than by enabling the utilities under their care to function efficiently.

* * * *

With the purpose of aiding public utilities to finance themselves, the suggestion is made that their securities be made exempt from federal taxes, along with government, state and municipal bonds. The point is made that the utilities—the telephone, the street car, electric light and gas industries—are public necessities, and are entitled to this advantage in view of their acknowledged difficulties in raising money to cover needed extensions and increased expenses.

Some objection is made to this plan by financiers and tax experts who, however, admit that the utilities are deserving of special consideration. They believe that the same end could be gained by limiting the list of tax-exempt securities, or eliminating it altogether, so that all securities would be on the same basis.

This might put the investment market on a more scientific basis from the viewpoint of the professional financier, but there is no chance of government bonds being taken out of the tax free list. Neither should there be. The Liberty bonds sold during the war were bought on the promise that they were to be exempt from certain taxes, and this promise must be kept sacred.

We all know that our federal taxes are too high now. The next move is not to increase, but to reduce them. A good way to begin would be to exempt the income from public utility securities from the federal income tax. It would help the utilities and relieve the strain on the taxpayers at the same time.

Utility Prices and Rate of Return

Changes in the Level of Prices and Factors Which Influence Them—Public Utility Prices—The Cost of Money and Some of the Factors to Be Considered — Paper Distributed by the First National Bank of St. Louis

One of the most interesting facts in economic history is that prices pass through periods extending over several years in which the level is upwards or downwards. While ordinary observations disclose great irregularity in the price of a particular commodity over short periods of time, yet careful investigation shows that prices in general are subject to this upward and downward trend.

There is no agreement as to any one cause producing these cycles of prices. The significant fact is that ever since there has been money, certain forces operate to produce this change in the price levels. We are now in the midst of one of these remarkable cycles.

Rising Price Level.

Beginning with 1897, the price level has been upwards, and the forces producing this effect, have been accelerated by the World War. Commodity prices in 1860, taken as 100, had increased to 130 by 1915, and by the close of the war, they had reached 230. This was the case in the United States, and a similar result is shown in all other nations.

These price changes are disclosed by the various index numbers, which are the only scientific method of measuring changes in prices. These index numbers show what is happening to prices in general.

Particular prices may increase or decrease over short periods of time. Some prices may not advance as rapidly as other prices, for the forces determining a single price, may in some respects be peculiar to it. For example, when monopoly exists—that is, when there is control over the supply—a larger degree of control over the price is possible. Likewise, when there is governmental control, the change in price is likely not to follow so closely the general upward tendency. This is especially true if the government regulation is of an essential and one for which the public is accustomed to paying a certain price.

Custom is an enormously strong force in controlling prices and governmental regulation only adds another force to restrain any change in price. This combined condition of customary price and governmental regulation is found in the case of public utilities. The people become accustomed to paying a certain price for their gas, their light, or their telephone, and are not ready to admit in a period of rising prices, that the rate—which is but one kind of a price—should advance along with other prices.

But cost elements which go to make up all prices, change quite as much in the case of a public utility as in the case of a cotton mill. The manufacturers of public service must increase wages like any other manufacturer. Parts of their machine or plant must be continually replaced and the new parts must be purchased on the higher price level. The public expects additional facilities and extensions to be ready whenever they wish them and this, too, must be bought at the increased price level.

In short, a public utility is no more free than any other producer of a commodity or service, to resist the force of increased prices. Indeed, such companies are not as free as is a private manufacturer. Government regulation is established to see that the public gets good service at a fair price.

Private Producer and Public Utility.

The private producer can reduce his labor force or even temporarily close his factory as measures of economy, but not so with the public utility. All the time the public must be served, and their good will secured, and at a price fixed not by the producer, but by the state. The public utility company can never take advantage of the market as the private producer does, and build up large profits and surpluses for the inevitable periods of no profits.

The assumption of government regulation is that the owner of public utilities will secure a fair return at all times, but in actual practice it is difficult to secure this for him, due largely to the opposition from the public to any increase in the price of a thing which they have been accustomed to buy at a certain price, and in part to the general suspicion of the people to public utility corporations.

Whatever may have been the injustices of the conduct of such companies in the past, such injustices cannot now be corrected. It is water which has run under the bridge. The important fact is that private capital is invested in public utility properties, just as in private corporations. This capital is subject to business risks as in a private enterprise. It is taxed. Its return is controlled by the state by largely inflexible rates. In short

the same considerations which determine the flow or investment of capital in any business, govern the investment of capital in this field.

Capital is not sentiment. It is not an emotional thing, governed by the motives of the hearth and home. It is selfish. It has neither pity nor pain. It goes where it can secure the best returns for itself. It forsakes its oldest friends at the least suggestion of sacrifice.

What is the situation then of many of our public utilities under prevailing conditions of an increasing price level, a regulated rate of return, or price, an unsympathetic public, a selfish capital, seeking as always, the best possible investment with an increasing number of bidders for the use of capital and a decreasing amount of capital for sale?

In the first place, there is a tendency towards a determination of the physical plant and force. Private industry producing its product for a sellers' market—that is, at high prices—is able both to pay more for materials and to pay higher wages to employes.

In the second place, extensions cannot be made with accustomed and desirable regularity due to the high prices and dearth of material and labor, the reduced earnings, and the lack of new capital. Public utility corporations operate very largely under the law of increasing returns—that is, the net return on increased units of service is greater than the proportional outlay required to furnish this increased service.

In the third place, the most significant of all the effects, is the refusal of new capital to flow into this field. A period of rising prices brings many opportunities to capital to receive a higher rate of interest, for it must never be forgotten that the rate of a return is a price—the price of capital—and like all other prices, should and must advance if capital is to be forthcoming. There is a cost of money just as there is a cost of wheat or pig iron.

In endeavoring to establish the cost of money to industry, a number of factors must be taken into consideration. The cost of capital at any one time is determined in a large measure, by the available supply of capital. If one were to endeavor to determine the relative supply of capital over a long period of years, the best index for measuring this would in all probability be found by investigating the yield on a large number of high grade securities.

Ordinarily it would be fairly safe to assume that when the average yield on a large number of such securities is high, the available supply of capital must necessarily have been considerably limited or at least inadequate to the demand existing at that time. The yield afforded by securities of this type is probably the only criterion by which the demand for and supply of capital can be determined. Since the price of any one bond, or a commodity for that matter, is likely to be influenced by special causes peculiar to itself, deductions of this nature can be made only by averaging a number of representative bonds, indicative of various types of industry.

In the case of bonds, computations representing the average yield, are rendered difficult by the fact that every bond has a date of maturity when it will be redeemed at par value. Therefore, when a bond is selling at a discount, its price tends to gradually rise to par, regardless of the demand for and supply of capital. Thus, the average price of bonds is not nearly as significant as is the average yield to maturity.

The average bond yield is, in its general movements, opposite to the bond price—that is, the higher the price of the bond, the lower the yield. It is quite obvious that the average investment yield obtainable from bonds or loans, depends primarily upon the supply of capital as compared with the demand for it.

If one were to examine the conditions affecting bond yields and money rates over a considerable period of time, it would be necessary to take into consideration the more important factors affecting capital during the period. In ordinary usage the terms, money and capital, are confusing and are used rather indiscriminately. On this point, even bankers and men of long experience in financial affairs are often hazy.

Strictly speaking, capital should be considered primarily as that part of wealth used in the production of additional wealth. Capital, unlike wealth, is dynamic, not static. It is the product of industry that has been saved or accumulated, which has been set aside or stored up in such a way as to be of aid in further production. Ordinarily we might consider that capital is that portion of the annual increment which is used to increase or further production.

The supply of capital available at any time depends upon a number of considerations:

First: The amount of labor productively employed. Capital can only be accumulated when there is a surplus of production. The efficiency of labor is, of course, a large factor in this regard.

Second: The use to which the surplus products of the nation are being put is a vital factor in regard to the available supply of capital. If this surplus is being used for current consumption—for food, clothing, luxuries, pleasures, etc.—the surplus products of industry fail to increase the supply of available capital. If the surplus is being invested in tools, equipment, and improvements which will bring an ultimate return in the form of increased production, the surplus naturally increases the supply of capital.

Normally, the total capital fund of the nation circulates rather rapidly. While the total remains, or rather is, gradually increasing, its component parts are continually changing.

Capital equipment can be maintained only by a constant replacement of worn out parts, and by additions and improvements to meet the increased demand being placed upon it by the growth and development of the nation. No capital investment can ever hope to be permanent. Even the Roman viaducts, which are perhaps the most permanent investment of capital afforded by history, eventually fell into disrepair. This represents an extreme type of capital investment.

Most forms of capital investments are very short-lived and must be replaced in their entirety in a comparatively short

Senator Harding on Utilities.

Senator Warren G. Harding, Republican candidate for President, expressed some decided views on the public utility situation in an address before the American Electric Railway Association at Cleveland a few months ago. In discussing the unfair financial burdens imposed upon public utilities by the war and its consequences, he said:

"The capital which seeks to render a necessary public service merits a square deal and must have it. Old time values are out of harmony in the new era of money's changed measurements. Stable financing, righteous earnings and just returns must be based upon a proper charge for the service rendered.

I believe in strictest regulation without conflicting authority, because all public utilities must yield to the voice of public interests. But the same power that protects the public must protect the public service, whether that servant is capital or the workman who operates the utility.

Destroyed credits must be restored and flexible circles of charges must be provided, so that the public may pay justly for that which it demands. The exploitation of 10 or 20 years ago justifies no failure in good faith today. The public, which is served, has an obligation no less than that of those who serve it."

space of time. The result is, that a large percentage of the annual increment of business must be put back into the business immediately in order to maintain the efficiency of the machine as a whole.

Experience shows that rising commodity prices are accompanied by a rise in bond yields. Superficially, the cause for this would seem to lie in the fact that with rising prices the investor, finding his real income reduced, would demand a larger return for the use of his capital and hence bond yields would tend to rise.

Another factor entering into the situation lies in the fact that with a rise in commodity prices, the demand for capital must necessarily increase, as the higher prices require a larger volume of capital in the conduct of business. Likewise, during a period of falling commodity prices, the situation is reversed, so that bond yields tend to follow commodity prices downward. As prices decrease, the volume of capital required in industry is lessened and the demand for capital thus falls off, lowering its price.

A chart showing the yield on a number of corporation bonds is found in a study of prices made by ex-Senator Theodore E. Burton and G. C. Seldon. They have shown that the average yield on a large number of corporation bonds in the United States has varied either upward or downward with the level of commodity prices in this country.

In 1860, the average yield was found to be between 6½ per cent and 7½ per cent. During the Civil War, the yield declined somewhat, but towards its close it had again risen, and averaged between 6 per cent and 7 per cent. After the close of the Civil War, the yield on bond prices gradually rose until about 1873 when the average was found to be between 7¾ and 8¼ per cent.

In this same period, commodity prices as prepared for the Aldrich report, rose from 100 in 1860 to 132 in 1866. Greenback prices in this period rose from 100 to about 230. Beginning with 1865, they gradually declined. Gold prices and greenback prices both reached the same level after specie payments were resumed in 1879.

Following this date, commodity prices increased somewhat up to 1883 and from that time on, they steadily declined until the low point was reached in 1897, the index number at that date being about 74. From 1897, commodity prices rose steadily until 1915, by which date they had reached about 130. During the World War they rose very rapidly and by the close of the war, had risen above 230.

The yield on bond prices followed the curve of commodity prices rather closely. From an average yield of between 7¾ per cent and 8¼ per cent in 1873, they dropped to an average yield of from 4¼ per cent to 4½ per cent in 1890, rising somewhat between 1890 and 1895, but after 1895 they declined to their lowest point for the period in the year of 1900, showing at that time an average yield of about 3¾ per cent. Since 1900 they gradually rose and by the beginning of the World War, the average yield on corporation bonds was between 4¾ per cent and 5 per cent. By the close of the war, the yield had risen to between 5¼ per cent and 5¾ per cent. Since the close of the war the average yield has risen even more rapidly and at present averages about 7.05 per cent.

Cost of Money at the Present Time to Public Utility Corporations.

In endeavoring to determine the cost of money at the present time to public utility corporations, there are several important factors that must be taken into consideration. The cost of money incident to the acquisition of the first money needed by a new corporation, would be different from the cost to obtain money for enlargements or improvements in a going concern.

This is due to the fact that only a part of the total capital needs of a corporation can be secured by a first lien on the property. In other words, all of the securities issued by a corporation cannot be equally secured as regards assets. Usually not above 60 per cent of the total bonded indebtedness of any corporation can be secured by assets termed the highest class. The remaining 40 per cent of the company's capital needs must thus be raised through the sale of junior issues.

No corporation can hope to raise its entire capital needs by a single issue secured by a first mortgage on its entire property value. Since a large part of capital needs must be raised through junior issues, they can be sold only if the yield is considerably higher than that offered by a senior issue.

In the case of a going concern seeking additional capital, it is practically impossible to offer the new securities in any volume on a parity with the senior issues of the company, even though the company is thoroughly sound and conservatively managed. Even aside from the nature of the security, new issues are always at a disadvantage in relation to the more seasoned issues which have been fairly digested by the investing public. The result is that new securities offered for the purpose of additions and betterments, must usually not only compete with the yield afforded by the senior issues of the company, but, in order to attract new capital, must offer even a higher yield.

The credit of public utility corporations on the whole, is at present more or less in disrepute so far as the general investor is concerned. This is not a mattter of theory or opinion, but one of fact. A glance at the price at which the highest grade public utility securities in the United States are selling, at the present time, proves this beyond doubt.

The highest grade American public utility securities can be purchased in the open market on a basis that will yield the investor anywhere from 1 to 2 per cent per annum more than the same sum would yield were it invested in any other similar grade of corporation securities. According to the bond yield computed on five average United States public utility bonds by "Brookmire's Economic Service," this type of security on May 1 could have been bought on a basis to yield more than 2 per cent in excess of the yield afforded by a similar investment in other railroad bonds of manufacturing companies.

According to Brookmire's figures, the average yield on five public utility bonds considered as representative issues, was 8.60 per cent on this date. On the same date, the yield on five bonds, representative railroad bonds, was 6.14 per cent. The following table, taken from Brookmire' Financial Bulletin on May 3, shows the following changes in bond yields since before the war:

Bond Yields.	Now	Jan., 1916	July, 1915	Before War
U. S. average, five public utility	8.60	5.18	5.31	5.09
U. S. average, five railroad	6.14	4.51	4.71	4.42
U. S. average, five manufacturing	6.41	4.89	4.99	4.93

Feeling that deductions as to the average yield afforded by public utility investments as indicated on the basis of only five companies was not likely to give a fair average, a compilation was made covering 17 highest grade American public utility issues. Only issues rated by Moody in his "Analysis of Public Utilities" as A, AA or AAA were used A compilation was made showing the yield to the investor, should any of these securities have been bought at their market price during the period from April, 1919 to May 1, 1920. On the basis of this compilation, the following results were obtained:

The average yield on the 17 highest grade public utility securities, between April, 1919, and December, 1919, was found to be 6.11 per cent. The average yield from January, 1920, to May 1, 1920, was found to be 6.75 per cent.

A similar compilation was made for three of the highest grade bond issues of the Atchison, Topeka & Santa Fe Railroad and two highest grade issues of the Union Pacific. The average yield on these highest grade railroad bonds from April, 1919, through December, 1919, was found to be 5.52 per cent. The average

(*Continued on page 35.*)

The Ideal Manager: His Duties

Some Characteristics and Qualifications of the Ideal Local Manager and What May Be Expected of Him—Human Touch an Important Factor in Promoting Harmonious Relations with Employes and with the Public

By Mark Mellor

Primarily, the duty of a local commercial manager is to increase the revenue for his company within the territory assigned to him for supervision. He has but one thing to sell—"telephone service." He should fully realize that revenue can only be increased through a more liberal or extensive use of trunk lines and telephone stations. It is through these mediums that the company is classified as a "going concern."

It is evident then that if the local manager does not make any increase in lines or stations, the company's revenues remain at a standstill, which is equivalent to a loss, unless a general increase in rates is granted to any company by the regulatory bodies of the several states to meet the abnormal conditions of the time.

A local manager should impress upon his force that the trunk line is the most important piece of equipment the company furnishes from a revenue producing standpoint, and that the charges have been made moderate intentionally. It matters not how many extension stations a subscriber may have, the use of the service is necessarily restricted to the trunk lines available for his use.

Analysis Shows That Many and Varied Qualities Are Combined to Form the Ideal Manager—the One that Makes a Success.

Besides producing a substantial increase in lines and stations, a local manager must take decisive steps to collect from subscribers amounts due for service rendered, without friction. He should hold down the outstanding balances to a minimum, which will prevent ultimate losses in written off accounts.

Whenever a local manager finds that a large user is a chronic delinquent in the payment of his telephone account, it is his duty to call upon the subscriber in person, if need be, and cultivate the subscriber's acquaintance through personal contact, making full explanation of the company's collection methods and soliciting the co-operation of the subscriber toward making payment of the account within the current month for which he is billed.

Telephone directory advertising helps in meeting the cost of publishing local directories, and should receive the proper attention of the local manager to the end that sufficient advertising space is sold to offset the charges involved in publishing the directory.

The local manager must study and carefully analyze the prospective development that can be reasonably expected throughout his territory, both as to the character of the development and the locality in which it may be expected to occur. Possessed of this knowledge, he should prepare proper estimates from which the several departments of his company can obtain necessary data concerning the maximum or minimum equipment that will be required to be in place, ready to handle the demands that may be made by the public at any designated period of time.

He must not be afraid to advance ideas for consideration by his superiors, being prepared, of course, to defend his suggestions, and ready to advance proper reasons in support of them. He should not be discouraged if he should fail to get his suggestions adopted, nor should he feel that future ideas will not be desired. In order to broaden his views and become more thoroughly versed in his duties, he should visit the other local commercial offices and profit by the experience of others, in both what he sees and learns.

The local manager must be more or less aggressive, but never obnoxious. He must have initiative and be a good mixer, knowing with whom, when and where to mix. He should be acquainted and on speaking terms with the influential and prominent people in his territory, winning their confidence and respect to the extent that when a grievance, either real or imaginary, arises against the company, he, the local manager, shall be the one to whom the public shall report their grievance at once; in that way preventing complaints, verbal or written, being lodged with those above the local manager or to the public service commission of his state.

It is the local manager's duty to see that the company's property is kept in good order and proper repair, bringing to the attention of persons in charge, any apparent oversight or neglect, it being his duty to safeguard all the company's interest at all times.

The local manager should insist that courteous treatment be extended by his subordinates, not only to the patrons and subscribers, but to all departments and employes with whom they may come in contact. He must require through personal supervision, that each subordinate does at least his share of the work in a competent and businesslike manner.

He must keep posted as to what each subordinate is accomplishing, and not only satisfy himself that the personnel of his staff is efficient, but must be able to discern and weed out the dead wood, replacing such vacancy only with such type of employe that may be further developed into future executives, for upon the strength of his organization lies his own chance for a successful administration, which will place him in line for promotion.

The local manager must be regular in his habits, thereby setting an example to his subordinates. While it is not expected that he shall always be the first man in the office and the last man to leave, he should, at least, be the first man there three times a week, and the last man

to leave three times a week in order that he may ascertain for himself that the work from the opening hour to the closing, is carried on in a proper manner, being ready to answer the call or needs of his office, 24 hours a day if necessary.

The local manager should follow the routine as laid down in the various instructions issued from time to time, and see that the instruction contained therein is adhered to. If in his judgment, the instructions do not seem to fit the case in hand, and he is of the opinion that he can improve upon the method to be followed, it is his duty to make a suitable recommendation covering the situation, giving full and concise reasons therefor. A recommendation without reason or fact is valueless. By having a complete knowledge of the routine work, the local manager will be able to detect the irregular movements of his subordinates and the work they handle.

The live local manager will co-operate with the several departments with which he comes in contact, knowing "who's who" in each department, and will point out matters of interest to his fellow employes in those departments. The local manager should become acquainted and be able to discuss intelligently the general condition of the telephone plant in his district, knowing when the central office switchboards are in danger of congestion, and the approximate date when relief has been scheduled; likewise with reference to the outside plant and cable.

The local manager should not only be on friendly terms with the press and the public, but also with the employes of his own and allied companies as well.

It is the local manager's duty to see that the general appearance of his office is up to standard, and that all desks are free from surplus papers at all times, especially after business hours. All files and cabinets should be properly labeled and records properly bundled and prescribed by the Interstate Commerce Commission, and those destroyed as per schedule. Letters and papers should be filed promptly and in an orderly manner.

The local manager should see that all communications are answered promptly, courteously and intelligently, either by correspondence or telephone, making suitable notation as to action taken on the original letter, or a carbon copy of his answer attached thereto. All appointments or promises should be kept to the exact letter or time specified, in as far as it is possible so to do, or ample apology made in the event of failure to meet the schedule promised.

All receipted bills and letters should leave the local manager's office properly enclosed and directed in a suitable manner. He should not leave this detail entirely to a messenger boy, but take sufficient interest in this branch of work to know that it is properly executed. A carelessly folded letter is a poor advertisement for any office.

The local manager must anticipate trouble and be able to forestall complaints. This he can do by keeping in touch with his force and the public, and when he learns that a subscriber is dissatisfied for any reason, develop the facts and if need be, call upon the subscriber in person and make suitable explanation and adjustment in order to satisfy the subscriber as to the justice of the company's policy in the matter.

The local manager must be able to write a complete, comprehensive and understandable report and never dodge the issue or present a report which is half baked, always placing himself in the position of the person to whom the report finally lodges, ever remembering that while he, the local manager, may be entirely familiar with all the essential facts relating to the transaction, it is vitally necessary for those who may read his report to have a clear understanding of the case in order that proper decision may be rendered. When sketch, map, or diagram can accompany the report, it materially helps the reader to obtain a mental picture of what the local manager is describing in a picture of words.

The local manager should attend all public functions in his territory and obtain all the friendly or favorable free advertising for his company that is possible without carrying it to the extreme, and with it possible adverse criticism. He must be able to entertain the patrons of the company in a proper and judicious manner, being allied whenever possible with the prominent civic and mercantile associations of his district.

I. C. C. Summary of Operations of Class A Companies.

On this page is presented the comparative summary of operations of 70 Class A telephone companies for the month of March and the three months ended with March 31, 1920, just issued by the Interstate Commerce Commission.

As will be observed, the operating expenses for March, 1920, show an increase of 29.6 per cent over the preceding year as compared with an increase of but 25.6 per cent in operating revenues. The increase of 41.6 per cent in traffic expense is undoubtedly due to the wage increases which the companies have found it necessary to grant to their employes. The ratio of expense to earnings for the month of March was 75 per cent as compared with 72.76 per cent in the same month of the preceding year.

	For the month of March—		Increase or decrease.*		For the three months ended with March—		Increase or decrease.*	
	1920.	1919.	Amount.	Ratio per cent.	1920.	1919.	Amount.	Ratio per cent.
Number of company stations in service at end of month	8,812,092	8,166,516	645,576	7.9	.....	.....	.....	....
Revenues:								
Subscribers' station revenues	$24,200,649	$19,589,145	$4,611,504	23.5	$ 71,391,103	$ 58,016,256	$13,374,847	23.1
Public pay station revenues	2,043,738	1,654,256	389,482	23.5	5,739,570	4,760,745	978,825	20.6
Miscellaneous exchange service revenues	366,972	325,548	41,424	12.7	1,103,665	976,645	127,020	13.0
Message tolls	11,448,482	8,893,390	2,555,092	28.7	32,515,065	24,801,304	7,713,761	31.1
Miscellaneous toll line revenue	1,153,419	799,361	354,058	44.3	3,357,016	2,425,738	931,278	38.4
Sundry miscellaneous revenues	515,905	360,749	155,156	43.0	1,474,254	1,108,338	366,016	33.0
Licensee revenue—Cr.	1,416,569	1,142,757	273,812	24.0	4,177,441	3,399,471	777,970	22.9
Licensee revenues—Dr.	1,414,621	1,141,133	273,488	24.0	4,171,872	3,394,298	777,574	22.9
Telephone operating revenues	$39,731,113	$31,624,073	$8,107,040	25.6	$115,586,342	$ 92,094,199	$23,492,143	25.5
Expenses:								
Depreciation of plant and equipment	$ 6,027,986	$ 5,541,928	$ 486,058	8.8	$ 17,978,902	$ 16,539,450	$ 1,439,452	8.7
All other maintenance	5,917,432	4,395,881	1,521,551	34.6	16,803,795	12,827,521	3,976,274	31.0
Traffic expenses	12,064,165	8,520,298	3,543,867	41.6	33,823,912	25,163,835	8,660,077	34.4
Commercial expenses	3,882,342	3,009,413	872,929	29.0	11,138,057	9,028,544	2,109,513	23.4
General and miscellaneous expenses	1,870,408	1,502,232	368,176	24.5	5,266,613	4,242,302	1,024,311	24.1
Telephone operating expenses	$29,762,333	$22,969,752	$6,792,581	29.6	$ 85,011,279	$ 67,801,652	$17,209,627	25.4
Net telephone operating revenue	$ 9,968,780	$ 8,654,321	$1,314,459	15.2	$ 30,575,063	$ 24,292,547	$ 6,282,516	25.9
Other operating revenues	$ 5,216	$ 4,643	$ 673	14.5	$ 13,297	$ 23,143	$ *6,846	*29.6
Other operating expenses	4,348	4,341	7	.2	12,499	13,655	*1,156	*8.5
Uncollectible operating revenues	113,557	113,667	*110	*.1	383,126	354,743	28,383	8.0
Operating income before deducting taxes	9,856,191	8,540,956	1,315,235	15.4	30,195,735	23,947,292	6,248,443	26.1
Taxes assignable to operations	2,546,221	2,084,219	462,002	22.2	7,595,228	6,150,548	1,444,680	23.5
Operating income	$ 7,309,970	$ 6,456,737	$ 853,233	13.2	$ 22,600,507	$ 17,796,744	$ 4,803.763	27.0

Comparative Summary of Operations of 70 Class A Telephone Companies for March, 1920, and the First Quarter of This Year.

"Telephony's" Home Study Course for Telephone Men

A Complete Presentation of the Principles Underlying Modern Telephony in All Its Branches—Arranged Systematically So That Regular Reading and Faithful Study Will Qualify Ambitious Men for Higher Positions—Prepared Under Supervision of Stanley R. Edwards—This Section Written by Jay G. Mitchell

Quiz Questions on the Preceding Installment.

1362. Is the speed at which the switch wipers, in any system involving mechanically-operated rotating switches, may be driven limited by mechanical considerations or by electrical or by both? What factor limits the speed of the vertical stepping in the conventional type of two-motion 100-point switch? Why is the greatest operating speed of the vertical magnet and switch shaft less than the greatest possible speed of the double line relay *A* in Fig. 296?

1363. What is an important item in the making of the successful circuit selection by means of the conventional type of swtich? What is true as to the wiper motion when the bank contact which is to be seized has been reached? Explain the basic distinction between the method of arresting the wipers of the selector switch shown in Fig. 296 and those of the line finder switch shown in Fig. 310. What relay operation must be completed subsequent to the contact made by the test wiper and the test bank contact in order to arrest the wipers of the line-finder switch shown in Fig. 296?

1364. What would result from too rapid stepping of the wipers of the line-finder switch shown in Fig. 310? What would result if banks containing a large number of contacts over *all* of which the switch wipers *must* pass were used?

1365. What is important as to the average amount of switch wiper travel incidental to the average call? What is caused by excessive switch wiper travel? How is the actual travel required limited by mechanical design of wipers? Give two or three illustrations. What is the factor of satisfactory mechanical design of switch wipers when single-motion switches are the type used?

CHAPTER XXXIII. Operating Combinations Including Switches (Continued).

1366. *Two-motion line-finder operation.*—In comparing the two-motion line-finder switch with the single-motion line-finder switch, it will be found that the mechanical operation of each has the same characteristics as when used in other ways, although the single-motion type is somewhat simpler and involves simpler circuit provisions than the two-motion type.

To offset this, the two-motion type of switch, as has been pointed out in Chapter XXXII, Mechanical Switching, TELEPHONY'S Home Study Course for Telephone Men, affords access to a total of 100 circuits with a smaller average number of steps per call than is required by the single-motion type of switch reaching a smaller number of circuits. This will be plain from a very brief consideration of Fig. 310, assuming that the line-finder switch bank contains 50 sets of bank contacts.

The minimum number of steps possible to be taken is zero, and the maximum number, with wipers making simultaneous contacts at opposite ends of the diameter is 25, an average of 12½ steps per call.

The two-motion,, 100-point line-finder switch, on the other hand, affords access to a total of 100 circuits, the minimum number of steps being two—one vertical and one rotary—and the maximum number of steps being 20—ten vertical and ten rotary—an average of 11 steps per call, assuming that all the calls are uniformly distributed into the entire 100 sets of bank contacts.

1367. *Additional requirement of the two-motion 100-point line-finder.*—In the operation of the two-motion line-finder switch it is necessary first to identfy the row in which the calling line bank contacts are located and then the individual bank contacts in the designated row. This process of selecting the calling line will be clear from reference to

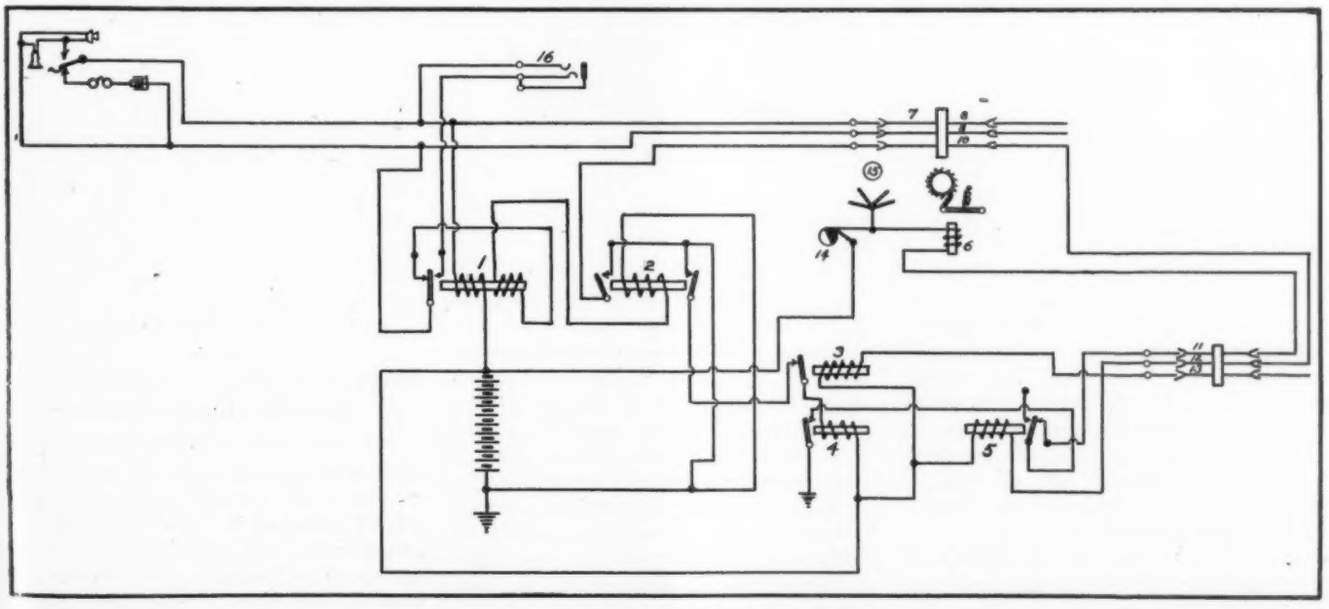


Fig. 310. Identification of Circuit in Switch Bank.

Fig. 311. This shows the circuit arrangements actually installed by one manufacturer of equipment employing the 100-point, two-motion type of line-finder.

In the circuit shown, line-finder switches are assembled in traffic-handling groups of 10 switches per group. These groups of 10 line-finders had access to and served a group of 100 subscribers' line equipments, each one of which was duly represented in the banks of the line-finder switches by a set of bank contacts.

Each line-finder switch was equipped with two sets of wipers—one set for the talking circuit and another set for the test circuits—while these two sets of wipers were supplemented by another single wiper, the function of which was to test for the row in which the bank contacts of the calling line appeared.

Incidentally the switch used by the manufacturer of this equipment stepped first in the rotary direction and then in the vertical—a mechanical detail, the value of which rests upon mechanical considerations solely, and which have no distinctive effect, as far as handling traffic is concerned.

1368. *Selection of bank contact row.*—In Fig. 311, the calling subscriber's line circuit is shown extending to the left through two arrowheads, and to the right where it appears in bank contacts 2 before three line-finder switches. The pair of line bank contacts are connected to the two sides of the subscriber's line circuit and are multipled through all the line-finder switch banks in the same group.

When the calling subscriber, in this system, removes his telephone receiver from its hook, a path is completed for a flow of current through the line relay *B* which is traceable as follows:

Starting at the grounded or positive terminal of the common battery, the current passes through one of the normally-closed break contacts of cut-off relay *A*, one conductor of the line circuit to the calling subscriber's telephone, through the telephone and the other conductor of the line circuit to another normally-closed break contact of cut-off relay *A*, then through the winding of line relay *B* and the common battery.

It is to be noted that the individual line equipment of this system comprises conventional line and cut-off relays. As a result of the flow of current over the path just traced, line relay *B* is energized and by the operation of its armature closes two normally-open make contacts. In Fig. 311, the make contact at the left hand end of line relay *B* is the contact which closes a locking circuit for the purpose of holding line relay *B* in the operated position until cut-off relay *A* has been energized and operated.

The purpose of this provision will be apparent when it is remembered that the average telephone subscriber using the conventional type of common battery instrument, is likely to operate the switch hook if service is not received immediately when making a call. The operation of the switch hook, in the absence of the line relay locking feature described would intermittently operate line relay *B*. As a result, the sequence of operations necessary to effect the selection of a calling line in the switch-bank contacts by the line-finder switch would be interrupted and the selection would be made impossible.

Line relay *B* then is locked in the operated position as soon as the call is received, and retains its armature in the operated position until released by cut-off relay *A*. The path over which the flow of current required to hold line relay *A* in the operated position passes, is obvious, and includes one of the normally-closed break contacts of cut-off relay *A*.

1369. *The start of the selection.*—Line relay *B*, by the operation of one of its normally-open make contacts connects the non-grounded or negative terminal of the common battery to the winding of group relay *C* which is common to ten similar line relays and, therefore, to ten subscribers' line circuits. Group relay *C* is energized by a flow of current from the positive or grounded terminal of the common battery through a winding of group relay *C*, the normally-open make contact of relay *B* (now closed) and the common battery.

As a result, group relay *C*, by the operation of its armature, completes an obvious path for the flow of energizing current through the winding of relay *D* and connects one of the contacts in the switch bank *H* with the positive or grounded terminal of the common battery. While the drawing does not show another group relay *C*, it should be said that the operation of group relay *C*, when associated with another group of ten lines, would complete the same energizing circuit throug relay *D* as is completed by the group relay *C* shown. It would also connect *another bank contact* in the same switch bank *H* with the positive or grounded terminal of the common battery for a purpose to be explained later.

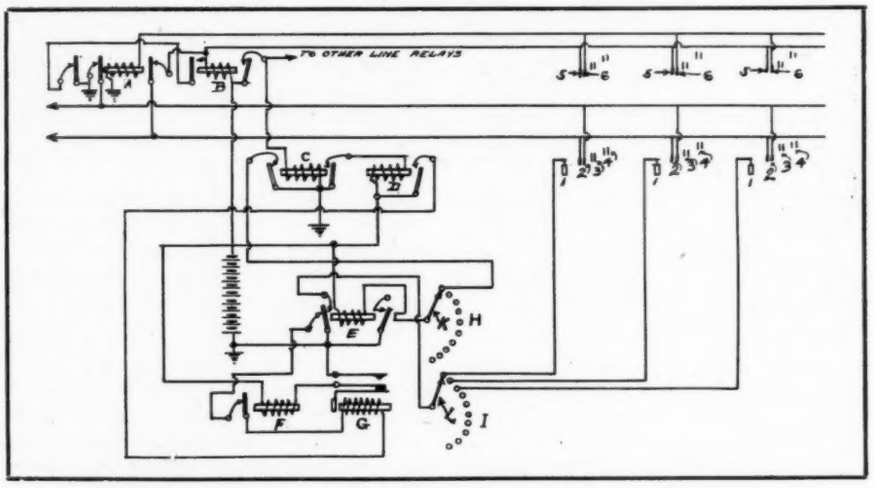


Fig. 311. Row Identification for Line-Finder Switch Wipers.

Each bank contact in *H* corresponds to one group of ten subscribers' lines and also to ten rows in the line-finder switch banks. Wipers *K* and *L* are mounted on the same wiper shaft and belong to the same single-motion switch. Banks *H* and *I* are parts of the same switch bank, and are presented to the two wipers, *K* and *L*, as their switch shaft is revolved.

This arrangement insures that if wiper *K* is arrested on any bank contact, wiper *L* will be resting upon the corresponding contact in another row. By this means, the row of bank contacts in which the calling line appears is identified through wiper *L* and its seized bank contact which, in turn, is determined whenever wiper *K* has reached its associated contact in the other row.

(*To be continued.*)

Forestville (Wis.) Telephone Co. Secures Higher Rates.

The Wisconsin Railroad Commission in an order entered August 10, authorized the Forestville Telephone Co., of Forestville, to increase its rates for rural residence service from its old rate of $1.25 per month to $5.25 gross per quarter and $4.50 net per quarter. The usual 25-cent monthly discount is allowed for prompt payment of bills.

The physical property of the company consists mainly of an exchange building, a 100-line magneto switchboard, and 18 local and 23 rural lines serving approximately 300 subscribers. The book value of the property and plant on December 31, 1919 was reported as $15,982.56. On this value an allowance of $2,240 was made to cover depreciation and return on the investment.

Rousing Texas District Meetings

Texas Independent Telephone Association Holds Successful District Meetings at Tyler and Sherman—Resolution Adopted at Sherman Protesting Lack of Representation on Committee to Draft Public Utilities Bill

Two of the best meetings held this year by the Texas Independent Telephone Association were the district meetings at Tyler and Sherman, on August 24 and 26, respectively. The programs were exceptionally strong and the attendance good, although it is believed the heavy rain in East Texas kept many at home who had planned to attend the meeting at Tyler. There were some 45 or 50 in attendance at each meeting.

Upon calling the Tyler meeting to order in the Court House, Oscar Burton, secretary of the Texas association, presented the first speaker of the morning session, A. L. Burge, vice-president and general manager of the East Texas Chamber of Commerce, who addressed the meeting on "The Necessity for Organization."

Following Mr. Burge, R. B. Still, of Tyler, president of the Texas association, spoke on "The Organization and Purpose of the Texas Independent Telephone Associations," and impressed those present with the necessity of co-operating with the association, particularly in the work it must do in the next few months.

An interesting talk by E. Gentry, secretary of the Tyler Chamber of Commerce, was followed by an address by H. M. Cox, of Waco, vice-president and general superintendent of the Texas Telephone Co., upon the subject, "The High Cost of Living and Its Effect on the Telephone Business."

Another very interesting and instructive address was that presented by H. T. Haley, general superintendent of the Grayson Telephone Co. on "Construction and Maintenance of Plant."

The Mineola telephone case, which has caused quite a lot of comment among the telephone fraternity in Texas recently, was then discussed by R. B. Still and others.

At one o'clock a luncheon was served at Hotel Tyler, the Gulf States Telephone Co. acting as host of the occasion.

Judge S. A. Lindsey, president of the Gulf States Telephone Co. delivered one of the best addresses of the meeting, his subject being "Our Duty to the Public." Judge Lindsey declared that in towns and cities where the commissions or public were unwilling to grant adequate rates where the telephone companies were justly entitled to them, they should be given the class of service they were willing to pay for. In other words, if the rates which the city commission or the public allowed the telephone company in such places were so low that good telephone service could not be given, then all the telephone company could do was to furnish the best service they could for the money paid by the subscribers.

"Why the Public Should Favor Adequate Telephone Rates" was discussed by L. S. Gardner, auditor of the Texas Telephone Co.

After a general discussion, with W. W. Davis, auditor of the Gulf States Telephone Co., in charge, the meeting was adjourned.

President R. B. Still Spoke on the Purposes and Plans of the Texas Association.

The meeting at Sherman was called to order at the K. of P. hall by J. C. Paxton, assistant general manager of the Associated Independent Telephone Companies, and the address of welcome was made by H. W. Head, president of the Associated companies, and prominent banker and lawyer of Texas.

Following Mr. Head's address, E. C. Blomeyer, former president of the Texas Telephone Co. and of the Texas association and now with the Automatic Electric Co. of Chicago, made a brief talk on the work of the Texas Association. Mr. Blomeyer asserted that on an annual budget of $1,200 the Texas association has been doing a work equaled only by two or three states with an annual budget of $6,000 or $8,000, and surpassed by none. With the coming of a utilities commission in Texas almost a certainty in the next few months, the speaker emphasized the need for a strong association to cope with the problems of the Independent companies and recommended that the association secure a full time secretary.

Following Mr. Blomeyer's address, E. R. Evans, traffic superintendent of the Texas Telephone Co., spoke on "Traffic problems," and presented many helpful suggestions.

"Teamwork as a Vital Factor in Modern Business," was the subject of a most interesting and helpful address by C. L. Pool, general manager of the Sherman Overall Mfg. Co., and president of the Texas chapter of the Society of Industrial Engineers.

Mr. Pool, who is known as one of the best business managers in the Southwest, and for several years has made an extensive study of scientific management, declared that teamwork is as essential to business, as to a baseball team, and that from the chief executive, down to the lowest employe, it must be thoroughly developed. It is his conviction that every business can multiply its results many times by securing a spirit of co-operation and teamwork throughout the plant.

The foreman, in his opinion is the vital link between the manager and the workers, and a foreman who does not enter thoroughly into his work with the right spirit, can wreck the efforts of the best management. The foremen of the country, he declared, are responsible to a large extent for the hostile attitude of labor toward capital and one of the first steps in securing industrial peace is by proper training of the foremen and department heads.

After Mr. Pool's talk, the meeting adjourned for luncheon at the Y. M. C. A. where the telephone men present were the guests of the Associated Telephone Companies.

At the conclusion of the luncheon, Dr. T. S. Clyce, president of Austin College, delivered a splendid inspirational address. Taking as his line of thought the idea that a man gets no more out of life or business than he puts into it, Dr. Clyce showed that all the great things in the world have come about through some man's putting his life blood into them.

If a business is worth working in at all, said Dr. Clyce, it is worth putting one's whole soul into it, that every man should have as definite a call to his work whatever it be, as a minister of the gospel is supposed to have in his field, and that only in proportion as a man enters

whole-heartedly into his work, forgetting the money and the hours and everything but the opportunity to render service, can he meet with true success.

The afternoon session was in charge of C. A. Shock, general manager of the Associated Home Telephone Co., of Sherman. E. H. Egan, manager of the Peoples Home Telephone Co., Denton, was the first speaker, his subject being "Collections." As winner in the 1919 commercial efficiency contest conducted by the Associated companies, Mr. Egan was ably qualified to speak on the subject. His remarks were timely and valuable and in closing, he said it could all be summed up in six words, "Go after them and get them."

Telephone salesmen travel around and have a splendid opportunity to know the real telephone man, his good points and his weak ones as well. H. A. White from the Kansas City office of the Kellogg Switchboard & Supply Co., and Price Winemiller, Texas salesman for Stromberg-Carlson Telephone Mfg. Co., related some incidents in connection with their experiences in the field, humorous and otherwise.

H. L. Harris, of Kansas City, Mo., vice-president of Theodore Gary & Co. was the next speaker of the afternoon. Taking up the subject of "Public Relations," Mr. Harris told of the experiences of his company in dealing with its employes and the public and said a square deal is the solution to both problems.

R. B. Still, of Tyler, president of the Texas association and general manager of the Gulf States Telephone Co., followed Mr. Harris. Mr. Still spoke on the same subject and told especially of the conditions in Texas which must be met within the next few months.

He stated that while the Bell system and the larger companies had been given representation on the committee of 18 appointed by Governor Hobby to draft a public utilities bill for presentation at the next legislature, the 900 Independent companies of the state were without representation. A resolution protesting against this lack of representation was thereupon proposed and adopted.

The last feature of the meeting was a round table discussion in charge of L. S. Gardner, of Waco, auditor of the Texas Telephone Co., Waco. Different matters in connection with the telephone business were brought up and fully discussed. The meeting adjourned at four o'clock with the unanimous feeling of those present that it was one of the best district meetings ever held in the state of Texas

New York Mayors to Fight for Rate Suspension Bill.

The New York State Conference of Mayors, in behalf of the municipalities of the state, is prepared to make an intensive fight for the passage of the public service commission's telephone suspension rate bill at the extraordinary session convening September 20.

The cities of the state are in favor of the passage of the bill, sponsored at the regular 1920 session by the public service commission and introduced by Senator L. W. W. Gibs and Assemblyman Slacer. The committee will ask Governor Smith to recommend the legislation in an emergency message. The bill clothes the public service commission with authority to suspend increased telephone rates, pending investigation.

Governor Smith has been notified officially of the action of the corporation counsels in asking for a special session to take up telephone legislation.

Each municipality was also notified of the action of the Albany conference and urged to be represented in the deliberations of the extra session hearings.

Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service.

Independents Not on Committee to Draft Utilities Bill.

Governor Hobby of Texas has appointed a committee to draft a public utilities bill to be introduced at the next regular session of the Texas legislature.

This is the committee the governor agreed to appoint after a conference with Mayor Wozencraft of Dallas and other representatives of the Texas League of Municipalities.

The personnel of the committee is composed of the following:

Mayors Frank W. Wozencraft, Dallas; J. W. Chancellor, Bowie; R. A. Amerman, Houston, representing the cities.

Chas. A. Harty, W. B. Head and J. D. Frank, all of Dallas, representing public utilities.

Senators W. L. Dean, Huntsville; Dr. Geo. C Butts, Austin, and Dexter Hamilton, Corsicana, representing the bench and bar.

Senators H. P. Dorough, Texarkana; Harry Hertzberg, San Antonio, and A. C. Buchanan, Temple, on the part of the senate.

Representatives Barry Miller, Dallas; Ben L. Cox, Abilene, A. B. Curtis, Fort Worth; Adrian Pool, El Paso, and Leonard Tillotson, Sealy, on the part of the house.

Chas. A. Bland, Beaumont, representing the Texas Industrial Traffic League and Texas Ports Association.

On this committee are representatives of all the large utility interests in Texas, but for some reason the governor did not see fit to select anyone to represent the Independent telephone industries of Texas. Neither is there a representative for the small independent gas and electric light companies.

Mutual Cannot Operate Without Commission's Approval.

The Indiana Public Service Commission, in an order issued August 28, has directed the Tri-county Mutual Service Community to cease construction, management, operation and control of the telephone exchange at Fortville, Ind., until it shall have complied with the provisions of the Indiana public utilities act.

According to the records in the case, the company has been selling stock, has obtained a franchise from the Fortville town board and is entering into competition there with the Fortville Telephone Co., without having obtained the consent of the public service commission and without having made a showing that public convenience requires a second utility of the kind in Fortville.

The commission's order says the organizers of the company probably believe their organization does not come under the public utilities act, but the commission asserted in the order that the test of whether an organization is a public utility is in the character of its service rather than in the character of the organization.

Organizers of the mutual company are named as Emerson Gentner, James A. McCarthy, Frank E. Brown and Jesse P. Cook.

Employes to Strike if City Blocks Rate Increase.

The employes of the Kansas City Telephone Co., in Kansas City, Kans., have notified the city commission that if it persists in pushing a recently filed suit to enjoin the company from collecting an increased schedule of charges put into effect a short time ago they will strike.

In order to show that they mean busi-

ness 70 of the employes have already dropped out, and the business interests are asking the commission to make some compromise by which they will not suffer the losses certain to follow the cessation of service.

Authority to increase rates was secured from the Kansas Court of Industrial Relations, whereupon the city commission proceeded to enjoin the company.

The company then said it could not raise wages, and the employes subsequently said there would be no service if the city blocked the way for the company to pay the new schedule of wages. The city commissioners charged that the service given did not justify any increase in rates.

Installs New Equipment and Gets Increase in Rates.

The Ellinwood Telephone Exchange, which furnishes service to nearly 500 patrons at Ellinwood, Kans., and vicinity, has been given permission by the Kansas Court of Industrial Relations to increase its rates to the following schedule:

	Per Month.
Business—	
Individual line (metallic)	$3.00
Party line (metallic)	2.50
Extension sets	1.00
Desk sets (additional)	.25
Residence—	
Individual line (metallic)	2.00
Party line (metallic)	1.50
Extension sets	1.00
Desk sets (additional)	.25
Rural—	
Party line (metallic)	2.00
Party line (grounded)	1.50
Switching	.50

The company has just recently completed the installation of complete and up-to-date common battery system.

The court requires that the Ellinwood Telephone Exchange shall set up annually out of its surplus at least $1,500 as a depreciation reserve.

Increases in Telephone Rates Approved by Kansas Court.

The Kansas Court of Industrial Relations, in orders handed down July 26, granted permission to the following companies to increase their rates for telephone service: Spearville Telephone Co., of Spearville, J. F. Heberlee owner; Axtell Mutual Telephone Co., of Axtell, and the Wayne Telephone Co., of Wayne.

Rates of $2.75 per month for individual line business service, $1.50 for individual line residence, $1.25 for two-party residence, $1.50 for rural party line service and $5 per year for rural switching are approved for the Spearville company.

The rates of the Axtell Mutual company are increased to $2 per month for business service, $1.50 for residence service and $1.25 for rural party line service. An extra charge of 25 cents per month is permitted for desk sets.

The new rates of the Wayne company are: $2 for business, $1.25 for local or rural residence and 50 cents per month for rural switching.

Hope Independent Company of Indiana Gets Higher Rates.

The Hope Independent Telephone Co. has been authorized by the Indiana Public Service Commission to increase its net monthly rates for telephone service at St. Paul and Cave as follows:

Single line business*	$2.25
Party line business	1.75
Single line residence*	1.75
Party line residence	1.50
Party line rural	1.50
Extension telephone	.50

*Plus a line mileage charge of 25 cents per month per quarter of a mile beyond the first half mile radius from the exchange building.

The old rates at Cave are $1.50 for business; $1.25 for single line residence, and $1.15 for rural party line. At St. Paul, the business rate was $2; party line business, $1.50, and all other telephones, $1.

Important to Iowa Telephone Companies.

Secretary Chas. C. Deering of the Iowa Independent Telephone Association, in a letter to "Telephony" under date of August 24, writes as follows:

"Our supreme court on August 9 handed down a decision in the Ottumwa Street Railway case, which is of great importance to quite a number of the Independent companies in this state. It is of importance to those companies that are operating under franchises granted by cities and towns, which prescribed maximum rates.

In this Ottumwa Street Railway case our supreme court held that the section of the franchise limiting the rates of fare was void, as being against public policy. The court said in effect that it was manifestly impossible to fix rates for a period of 20 or 25 years which would be fair to both sides."

Higher Rates Are Authorized at Westmoreland, Kans.

Rates of $2.50 per month for individual line business and $1.50 for individual line residence service in the city of Westmoreland, Kans., and rural party line rates of $1.75 for business and $1.25 for residence service, are approved for the Westmoreland Telephone Co. in a recent order of the Kansas Court of Industrial Relations.

An additional charge of 25 cents per month is permitted for desk sets and charges of 75, 50 and 25 cents, respectively, for business extensions, residence extensions and extension bells, either business or residence.

For individual line rural service the company is authorized to make an additional charge above the rates for city service of 25 cents for each quarter mile or fraction thereof beyond the city limits.

New Rates for Chesapeake & Potomac in Baltimore.

The new rate schedule approved for the Chesapeake & Potomac Telephone Co. in the city of Baltimore in a ruling handed down August 18 by the Maryland Public Service Commission will affect the old schedule of rates as follows:

The minimum monthly rate of $3.50 for individual business or residence line service with an allowance of 50 calls remains unchanged.

Two-party line subscribers, business and residence, will pay 25 cents a month more, the business rate going to $2.75 and the residence rate to $2.50.

The unlimited residence service rate is increased from $5 to $5.50 a month.

County subscribers are given the option of measured or unlimited service. The measured service rate, with an allowance of 50 calls, is $3.50 a month.

Graded rates are established for unlimited service on individual lines, ranging from $2.75 a month in the smallest county exchange to $5 in largest.

All subscribers are saved 6 cents on 15-cent toll calls by their reduction to 14 cents and consequent avoidance of government war tax.

The new rates are effective as of September 1 and are to continue in force until January 1, 1922, with the commission reserving the right to make changes if they are shown to be advisable by monthly reports the company will make.

The increase in revenue is estimated at $600,000 per year as compared with about $735,000 asked by the company. It is expected that the rates will yield 5.3 per cent upon the investment.

Minnesota Companies Are Allowed Connection Charges.

The Bertha Telephone Co., of Bertha, the Eagle Bend Telephone Exchange Co., of Eagle Bend, the Viola Farmers Telephone Co. of Eyota, the Jackson Telephone Co., of Jackson, the Farmers & Merchants Telephone Co., of Arlington, the Green Isle Telephone Co., of Green Isle, and the Shakopee Telephone Co., of

Shakopee, were recently given permission by the Minnesota Railroad & Warehouse Commission to place into effect the following service connection charges:

Instrument not in place—
Business stations $2.00
Residence stations 1.50
Extensions, business or residence 1.00
Instrument in place—
Business stations $1.50
Residence stations 1.00
Extensions ..... No charge

Outside moves and miscellaneous charges are as follows:

MOVE CHARGES.

Outside Moves:

All outside moves to bear the regular service connection charge for the class of service affected.

Inside Moves:

For main station or extension station within same room, or within same premises, $1.

Change in Type of Equipment:

For main station or extension station, $1.

Disconnect and Reconnect for Nonpayment.

Any class of service, $2.

SUPERSEDING SUBSCRIBERS.

Main Station Service:

Any individual, firm, or corporation to supersede another without the payment of service connection charges, provided there is no interruption of service and no change in name or in location, or type of equipment.

For change in name only in the directory listing, but no change in the telephone number, a charge of $1 will be made.

In all other cases, the regular service connection charges will apply.

Rates Increased Upon Furnishing of Continuous Service.

Contingent upon the establishment of continuous 24-hour service, the Eagle Bend Telephone Exchange Co., of Eagle Bend, is given permission by the Minnesota Railroad & Warehouse Commission, in an order entered August 27, to increase its rates of $2 per month for business service, $1 for residence service and 25 cents for rural switching to the following schedule:

	Net per Month
Individual line business	$2.50
Extension stations	1.00
Individual line residence	1.50
Four-party line residence	1.25
Extension stations, residence	.50
Rural switching charges	.35

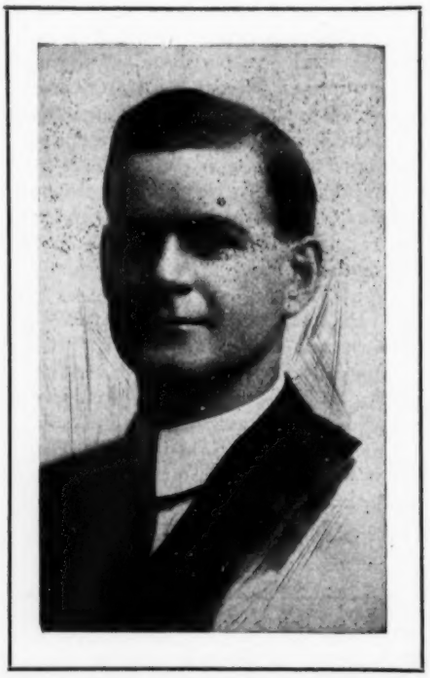
Temporary disconnects at one-half of the regular rate for any class of service.

The Eagle Bend Telephone Exchange Co. has been in operation since 1907, and now serves 356 town and rural connecting line stations.

The commission has under investigation the cost of furnishing rural switching service, and denies without prejudice, the petitioner's application for a rate of 50 cents per month, but will allow a rate of 35 cents per month until such time as the cost of furnishing this class of service is determined.

Recognizes Economical Operation in Fixing Rates.

Economical operation of the property in the past is recognized by the Minnesota Railroad & Warehouse Commission in ruling upon the application of the Mankato Citizens Telephone Co., of Mankato, to increase rates at its various exchanges. Business rates at Mankato are increased 50 cents per month and residence rates, 25 cents. The increases at



P. M. Ferguson, of Mankato, Minn., the Economical Operation of Whose Plant Was Recognized by Commission in Fixing Rates.

the other exchanges range from 25 cents to $1 per month.

The Mankato Citizens Telephone Co., of which P. M. Ferguson is manager, was organized in 1898 and operates exchanges at Mankato, Mapleton, Good Thunder, Madison Lake and Eagle Lake, serving some 6,103 subscribers. All exchanges are connected by metallic toll lines. The new rate schedules which affect all of the company's exchanges are as follows:

	Mankato.	Other Exchanges.
Individual line business	$3.50*	$2.50*
Two-party line business	3.00*	2.25*
Extension, business	1.00	.75
Indiv. line residence	2.25*	1.75*
Two-party line res.	2.00*	1.50*
Four-party line res.	1.75*	1.25*
Extension, residence	.75	.50
Rural multi-party	1.75*	1.75*
Rural switching	.50	.35
Commercial priv. branch exchange stations	1.00	
Hotel private branch exchange	.50	

*Gross rates subject to a discount of 25 cents per month if paid on or before the 15th of the month in which the service is rendered.

In allowing the company to discontinue furnishing free toll service between Mankato, Eagle Lake and Madison Lake, the commission expresses its views on the question of free service as follows:

"The commission does not approve of the policy of charging all subscribers a rental rate which will absorb the expense of furnishing long distance service to a few. A reasonable charge for long distance service will have a tendency to curtail the number of trivial messages for those of more importance and will place the cost of such service upon the user where it justly belongs."

The following toll rates for station to station service are approved by the commission:

Mankato to Madison Lake—10 cents for five minutes and five cents for each additional three minutes.

Mankato to Eagle Lake or Eagle Lake to Madison Lake—five cents for five minutes and five cents for each additional five minutes.

"The Mankato Citizens Telephone Co.," the opinion of the commission in this proceeding recites, "constructed a telephone exchange at Mankato in 1898, and entered into competition for local telephone service with the Northwestern Telephone Exchange Co. July 1, 1918, the Tri-State Telephone & Telegraph Co. acquired by purchase the property owned by the Northwestern Telephone Exchange Co. at Mankato, Eagle Lake and Madison Lake, together with other exchanges and toll lines in southern Minnesota.

On March 1, 1920, the Citizens Telephone Co. acquired by purchase, from the Tri-State company, the local telephone exchanges at Madison Lake, Eagle Lake and such portions of the Mankato exchange as could be used in connection with their property, at a cost of $55,492.94. This purchase eliminated 500 duplicate telephones at Mankato and added 200 new subscribers to the petitioner's system.

The applicant shows a plant value of its entire property of $346,283.51.

Economical operation of the property in the past has been recognized in the consideration of this case."

Village Trustees Withdraw Protest to Higher Rates.

The Missouri Public Service Commission, on August 25, vacated its suspension order of July 28 and authorized the Morrisville Telephone Co., of Morrisville, to

place the proposed schedule of rates in effect as of September 1. The new rate schedule, which is effective for a temporary period of 13 months, follows:

	Rates Per Month
Business, direct line	$1.75
Business, direct line, subscriber owning telephone	1.50
Extension sets	.75
Residence, direct line	1.00
Residence, direct line, subscriber owning telephone	.75
Class A switching (per year)	4.00

At the time the rate application was filed, protests were entered by the board of trustees of the village of Morrisville but they were later withdrawn, in a letter dated August 12, in which they request that the commission grant the increase in rates as filed by the telephone company for the reason that the rates are reasonable and just.

Subscribers Petition Commission for Higher Rates.

The Memphis Telephone Co., operating 500 stations at Memphis, Mo., and vicinity, and furnishing switching service to 550 rural patrons, has been authorized by the Missouri Public Service Commission to increase its direct line business rate from $1.25 to $2.50 per month and its direct line residence rate from $1 to $1.50 per month. The rural switching rate is increased from $3 to $6 per year.

The new rates are allowed for a temporary period of 13 months, beginning September 1.

The commission states in its opinion in this proceeding that "since the filing of the schedule, the commission has received letters from subscribers and prominent business men, also petitions signed by about 100 subscribers to the telephone service, all asking that the increase as asked by the company be allowed, giving as their reasons the fact that the rates as charged at the present time have been in force for a period of 22 years; that the increased cost of material and labor makes it necessary to increase the rates, and that the telephone company is improving its service by making the necessary additions and changes in the apparatus.

"The commission finds, after having examined the sworn statement submitted that the increase in rates will allow the company a not unreasonable or high rate of return; that the rates as asked are not above those in force at other exchanges in the state similarly situated, and which have been allowed by the commission after exhaustive hearings and investigations."

Party Line Residence Rate Reduced in Final Adjudication.

With the exception of the party line residence rate the emergency rates granted the Worthing Electric Co., of Worthing, by the South Dakota Railroad Commission on December 27, 1919, are approved by the commission, after thorough investigation.

In the emergency order the company was permitted to charge a rate of $1.25 for individual line or party line residence service. This, the commission finds, is discriminatory, as a higher rate is manifestly justified for individual line service than for party line service. The rate for the latter class of service is, therefore, reduced to $1 per month.

The other rates provided in the commission's original order, which are approved at this time follow: Business service, $2 per month; individual line residence, $1.25; extension sets, 50 cents; extension bells, 25 cents.

The company is ordered to refund all rental charges collected during the period from January 1 to September 1, the effective date of this order that are in excess of the rates found to be reasonable and authorized in the recent ruling. At the time the emergency rates were permitted to become effective the company was required to file a bond in an amount equal to or exceeding three times the total monthly revenue that would be derived from subscriber's rentals on the basis of the proposed rates.

The Worthing Electric Co. owns and operates an exchange at Worthing and 14 rural lines radiating from that exchange, furnishing service to a total of 270 subscribers. The commission found $8,500 to be a fair value upon which to base maintenance and depreciation charges, and to use in determining what rate shall be allowed stockholders.

Rural Rates Increased in Vicinity of Boaz, Wis.

The Wisconsin Railroad Commission on August 10 authorized the Akan Telephone Co. to increase its rates for telephone service from $9 to $12 per year. The subscribers are to be billed semi-annually at $6.25 gross and to have their bills discounted 25 cents if paid on or before the first month of the period for which they are billed.

The Akan Telephone Co. is a small rural telephone company serving about 30 subscribers on two rural grounded lines. Exchange service is obtained from a central office at Boaz maintained jointly by the Akan Telephone Co., the Mill Creek Telephone Co., Five Points Telephone Co., and the Gault Hollow Telephone Co.

Summary of Commission Rulings and Schedule of Hearings.

ALABAMA.

September 22: Hearing on the petition of the Southern Bell Telephone & Telegraph Co. to increase its rates for telephone service throughout the state. The company declares in its petition that its revenue is not sufficient to yield a return on the investment and to make the necessary additions to the equipment to improve the service, as demanded by the citizens of Alabama.

CALIFORNIA.

August 24: The commission extended until November 15 the time within which the Santa Monica Bay Home Telephone Co., of Santa Monica, is to make a bond issue of $147,000.

August 25: Petition filed by the San Antonio Home Telephone Co., which operates between King City and Jolon, Monterey county, for permission to raise its rates to stockholders from $8 to $15 a year and to other persons obtaining telephone service from $18 to $21 a year.

INDIANA.

August: The commission authorized the Hope Independent Telephone Co. to increase its rates for telephone service at St. Paul and Cave.

August: Application filed by the Leiters Ford Telephone Co., of Leiters Ford, to increase its present rate of $1 per month for all classes of service to $1.75 for business service, $1.60 for individual line residence and $1.50 for party line residence service, with an extra charge of 15 cents per month for desk telephones.

August: Petition filed by the Spiceland Co-operative Telephone Co., of Spiceland, for an increase in rates.

August: Petition filed by Cavuga Telephone Co. for the right to discontinue free exchange service between the towns of Newport, Dana, Hillsdale, Perrysville, Gessie and Rileysburg. If the petition is granted it will mean the discontinuance of the flat rate for county service and the payment of five cents every time a call is made to Cayuga or through the Cayuga exchange, or out of Cavuga to any of the various exchanges.

The Cayuga company also asks that the revenue derived from such toll charges be distributed among the companies carrying the messages in proportion to the number of miles of toll line owned by the company.

August: The Atlanta Telephone Co., of Atlanta, petitioned the commission for permission to discontinue free service between Atlanta and Ekin.

August 28: The commission directed the Tri-County Mutual Service Community to cease construction, management, operation and control of the telephone exchange at Fortville in competition with the Fortville Telephone Co. until it shall have complied with the provisions of the Indiana public utilities act.

August 31: Hearing in re application of the Huntertown Telephone Co. for authority to increase its rates and to issue and sell $15,000 in common stock, and for authority of the Farmers' Mutual Telephone Co. and the Huntertown Telephone Co. to purchase the Bell Telephone plant at Huntertown.

MARYLAND.

August 18: The commission handed down its ruling in the matter of the application of the Chesapeake & Potomac Telephone Co. to increase its rates for telephone service in Maryland and vicinity.

MICHIGAN.

August 18: Petition filed by the Shawassee Mutual Telephone Co. for physical connection with the Union Telephone Co. at Bancroft.

MINNESOTA.

August 23: The commission granted permission to the Mankato Citizens Telephone Co. to increase its rates for telephone service at Mankato, Mapleton,

Strowger Automatic Telephone Equipment and Labor Costs

A CONSTANTLY larger portion of every dollar of telephone revenue is being paid out for employes' salaries. Other expenses have advanced, of course, some in larger ratio than labor, but they make up such a relatively small share of the total expense, that while they do cut into the balance left for capital charges and dividends, labor cost is the chief problem.

Strowger Automatic Telephone equipment has many advantages in addition to economy, but from the point of view of the owners of telephone properties, none is more important today. As an example of what Strowger equipment does to reduce labor costs, a table recently drawn up is of considerable interest. It summarizes labor costs in five exchanges lately converted to automatic operation. These systems range from 2,500 stations to 25,000 and average 12,000 telephones each.

Before installing Strowger equipment, these exchanges required an average of one employe for 75 telephones, or a total of 856 men and women.

Today these same exchanges are employing only one person for each 412 telephones, and of these 45 per cent are men drawing living wages, and most of them are in the telephone business to stay. And yet only six more men, an average of less than one per 10,000 stations, are required for Strowger operation and maintenance than with the old equipment. The number of women employes has been cut nearly 90 per cent.

But of even greater importance is the net reduction in wages. For operating and maintenance labor it was costing $8.56 per station per year before Strowger equipment was installed. The actual cost of these same items now is $2.12 per station per year, a reduction of $6.44, or over 75 per cent.

The average gross return per telephone in these exchanges is approximately $30.00 yearly. Before changing to Strowger operation, labor costs absorbed practically 28 cents out of every dollar taken in. With Strowger equipment only seven cents per dollar of gross income are taken for operating and maintenance labor.

Actual results such as the above are the best basis for judging what the Strowger Automatic System can do for your exchange. Thirty years of successful experience stand back of this equipment.

Automatic Electric Co. ::: Chicago

COLUMBUS OFFICE:
516 Columbus Savings & Trust Bldg.

NEW YORK OFFICE
21 East 40th St.

FORT WAYNE OFFICE:
502 Bass Block.

Associated Companies:

INTERNATIONAL TELEPHONE SALES AND ENGINEERING CORPORATION, New York

International Automatic Telephone Company, Ltd., London

Compagnie Francaise pour l'Exploitation des Procédés Thomson-Houston, Paris

Automatic Telephone Mfg. Co., Ltd., Liverpool. **Automatic Telephones, Australasia, Ltd., Sydney.**

Good, Thunder, Madison Lake and Eagle Lake.

August 24: Order authorizing the Murdock Central Telephone Exchange Co. to increase its rates for telephone service at Murdock and vicinity.

August 25, 26, 28 and 30: The commission approved certain service connection and move charges for the Bertha, Eagle Bend, Viola Farmers, Jackson Farmers & Merchants of Arlington, Green Isle and Shakopee telephone companies.

August 27: The commission authorized the Eagle Bend Telephone Exchange Co., of Eagle Bend, to increase its rates for telephone service contingent upon the establishment of continuous 24-hour service.

September 14: Hearing at Marietta in re application of the Marietta Telephone Co. to increase its local and rural rates and to place in effect certain service connection and move charges.

September 16: Hearing at Hutchinson in re application of the Hutchinson Telephone Co. for authority to increase local and rural rates.

September 20: Hearing at Waseca in re application of the Waseca Telephone Co. for authority to increase local and rural rates and to establish certain service connection and miscellaneous service charges.

MISSOURI.

August 15. The commission suspended until December 29 the proposed increase in rates as asked by the Johnson County Home Telephone Co. for its exchanges at Knob Noster, and LaMonte. No. 2667.

August 20: The commission authorized the Osceola Telephone Co., of Osceola, to continue in effect for a further period of 13 months up to and including September 20, 1921, the rates allowed in its orders of May 13, 1918, and June 30, 1919. No. 1554.

August 23: The commission further suspended for a period of six months, from August 23, 1920, to February 28, 1921, the proposed rate schedule of the Farmers Telephone Co., of Versailles. No. 2441.

August 23: The commission further suspended for a period of six months from August 28, 1920, to February 28, 1921, the proposed rate schedule of the Albany Telephone Co., of Albany. No. 2443.

August 23: The commission suspended until December 29 the proposed rate schedule of the Lafavette Telephone Co., of Lexington. No. 2663.

August 23: The Southwestern Bell Telephone Co. is given permission to place into effect at its St. Louis exchange for a temporary period of 13 months beginning September 1, the rates contained in the schedule accompanying the amended and supplemental petition of June 14, 1920. No. 2463.

August 24: The commission suspended until December 29 the proposed rate schedule of the Lead Belt Telephone Co. for its exchanges at Farmington, Flat River and Bonne Terre. No. 2664.

August 24: The Eldon Local & Long Distance Telephone Co., of Eldon, is given permission to continue in effect for a further period of 13 months, beginning September 1, 1920, the rate schedule which it was authorized to place in effect on August 1, 1919. No. 2089.

August 25: Order issued authorizing the Memphis Telephone Co., of Memphis, to increase its rates for a temporary period of 13 months beginning September 1. No. 2668.

August 25: The commission authorized the Home Telephone System, of Holcomb, to continue in force for a further period of 13 months, beginning September 1, rates which the commission approved for a temporary period in its order of July 29, 1919, it appearing that the company's earnings for the year ended August 1, 1920, were sufficient to allow a return of but half of one per cent. No. 2108.

August 25: The commission authorized the Morrisville Telephone Co., to increase its rates for a temporary period of 13 months, beginning September 1. No. 2635.

August 27: The commission authorized the Cowgill Telephone Co., of Cowgill, to increase its rates follows for a temporary period 13 months, beginning September 1: Direct line business, from $1.50 to $1.75 per month; direct line residence, from $1 to $1.50; class B rural service, from $1 to $1.50. Four-party residence service is offered at 50 cents per month. A discount of 10 cents is allowed for payment by the last of the current month. No. 2671.

August 27: The commission suspended until December 29 the proposed rates of the Ripley County Telephone Co. for its exchange at Doniphan. No. 2670.

NEBRASKA.

August 25: Complaint filed by Manager Boss of the Seneca Telephone Co., alleging that the Loup River Telephone Co., of Thedford, has refused to make connection at Norway of toll lines after having induced complainant company to build to that point.

August 26: Complaint filed by Joseph Fuchs, of Humphrey, against the Nebraska Telephone Co., alleging that it seeks to make an inproper charge for service.

NEW YORK.

August 24: The Cattaraugus Union Telephone Co. filed a new schedule of rates for telephone service at Cattaraugus, Delavan, East Otto, Ellicotville, Franklinville, Hinsdale, Little Valley, Machias and Otto.

August 25: New rate schedules filed by the Allegany County Telephone Co., of Angelica, Belfast, Belmont, Bolivar, Cuba, Rushford and Wellsville, and the Friendship Telephone Co., of Friendship, Clarksville, Cuba and Wirt.

August 26: The Nicholville Home Telephone Co., under a tariff filed with the commission, which it proposes as effective on October 1 in towns of Hopkinton, Lawrence, Brasher and Stockholm in St. Lawrence county, will increase all rates for telephone service $3 a year.

NORTH DAKOTA.

September 7: Hearing in re-application of the Zap Telephone Co., of Zap, postponed to this date from August 18.

OHIO.

August 19: The Continental Farmers Mutual Telephone Co., of Continental, filed notice of increased rates.

OKLAHOMA.

September 7: Hearings at Oklahoma City in re-application of the Comanche Telephone Co., of Comanche, to increase rates and complaint of the Garber Telephone Co. as to inductive interference from power lines of the Oklahoma Gas & Electrical Co.

SOUTH DAKOTA.

August 23: The commission approved the emergency rates granted the Worthing Telephone Co., of Worthing, on December 27, 1919, with the exception of the party line residence rate which is reduced to $1 per month.

WISCONSIN.

August 25: The commission authorized the Bloom Telephone Co. to increase its rates for telephone service from its $9 to $15 per year. The company is a small rural telephone utility with six grounded lines serving 62 subscribers. Exchange service is obtained from the central office of the Richland Telephone Co. at Bloom City. For this service the company pays a rate of $8 per year per telephone.

August 25: The commission authorized the Larsen Telephone Co. to increase its rates from $18 to $21 per year. The company furnishes service to approximately 400 subscribers in and about the village of Larsen. The physical property consists chiefly of a 50-drop magneto switchboard and 13 local and 32 rural lines totalling 82 miles of poles and 507 miles of wire. The lines are all metallic. The book value of the property on December 31, 1919, was reported as $14,430.80, or approximately $35 per telephone.

August 25: The commission rendered a decision finding the public convenience and necessity did require the proposed extension of the Manawa Telephone Co. in Sections 17, 18 and 19 of the town of Little Wolf and authorized the construction of the extension.

August 25: The commission authorized the Canton Farmers Telephone Co. to increase its rates for telephone service from $12 per year to $4.50 gross and $4.20 net per quarter. A discount of 30 cents is allowed if the bills are paid before or during the first month of the quarter for which they are due.

The Canton company furnishes service to approximately 120 subscribers in and about the village of Canton, Barron county. The physical property consists chiefly of a central office building, 34 miles of poles and 60 miles of wire. The lines are well grounded and all the telephone instruments are owned by the subscribers. The book value of the property on December 31, 1919, was reported as $2,448.89.

August 31: Hearing at Madison on the application of the Prentice Mutual Telephone Co. for authority to increase rates.

September 2: Hearings at Madison on the applications of the La Crosse Telephone Co., of La Crosse, the Rusk County Rural Telephone Co., and the People's Telephone Co., of Rio, for authority to increase its rates for telephone service.

September 2: Hearing at Galesville on the proposed extension by the Ettrick Telephone Co. in the towns of Gale and Ettrick, Trempeleau county.

September 2: Hearing at Galesville on motion of the commission of the alleged refusal of the Ettrick Telephone Co. to extend service to Olaf Klinkenberg.

September 3: Hearing at Madison on the application of the Cuba City Telephone Co. for authority to increase its rates for telephone service.

September 3: Hearing at Marshfield on the complaint of Hugo Wegener, et al., against the Marshfield Telephone Co. regarding discontinuance of free service to rural connecting lines.

September 3: Hearing at Marshfield on the complaint of the Marshfield Telephone Exchange against the Lindset Telephone Co. regarding discontinuance of connections.

September 3: Hearing at Marshfield on the complaint of the Marshfield Rural Telephone Co. against the Marshfield Telephone Exchange regarding unreasonable switching rates.

Human Interest in Telephone Field

Emphasize the Human Interest Phases of the Telephone Business in Your Publicity Matter and You Will Secure More Consideration and More Tolerance on the Part of the Public for Occasional Faults in the Service

By Frank H. Williams

To many telephone subscribers the only human interest features connected with the telephone service consist in their own personal experiences with the service and in the occasional write-ups they see of heroic telephone girls who performed wonders at the front in the Great War, who stuck nobly to their posts in the face of advancing forest fires or raging floods.

Mighty few folks appreciate the fact that the telephone business is jammed to the brim with human interest stories in practically every department of the business. Few people realize the stories of adventure, of service and of sacrifice that are daily enacted by employes of the telephone companies in the work of keeping the service up to top notch. And it would seem as though people would have more consideration, more tolerance for occasional faults in service if this human element of the business could be gotten over to them in an interesting, entertaining and newsy manner.

A Winter "Jolt" with a Repairman.

For instance, on a cold, dreary afternoon of last winter I jolted out into the bleak countryside with a repairman who was bent on finding the trouble on a rural party line. The weather was raw and infinitely disagreeable. The roads were rutty and sleety and the "flivver" jerked and jumped from side to side and up and down like an ocean liner in a bad sea.

It was impossible to keep comfortable. The blasts sought out all the holes in the curtains and played hide and seek up and down the spine. It was the sort of a day when the office man congratulates himself upon having an inside job and not being forced to brave the stinging cold and insatiable winds.

Out into the country we jolted—five miles, 10 miles, 15 miles. All the time, after getting 12 miles out, we kept sharp lookout to find out where the trouble was. Every now and then we stopped while the repairman dashed nonchalantly to a suspicious looking tree past whose dead branches the telephone wire went. Was it here that the trouble lay? And when that particular tree proved to be innocent, the repairman jumped cheerfully into his seat and again sent the old bus careening forward.

"Some job!" I said. "Do you have to make trips like this very often?"

"Often!" he laughed. "Say, I drove over 80 miles this morning! It's a poor day when I don't go a good hundred miles hunting for trouble."

"Bet you have a lot of trouble hunting for it?"

"I'll say! But this old boat sure plows through the snow and mud. Last week I went three miles through snow a foot deep! It's a great life if you don't weaken!"

"Do the subscribers appreciate how much work is involved in making repairs and getting their telephones back in order?"

The repairman grinned at this question.

"Nope!" he exclaimed. "It's my opinion that telephone subscribers as a whole haven't the faintest idea of just what it means to be hunting up trouble on the lines all the time. They seem to think that when a telephone goes bad, they are being imposed upon.

"Sometimes they whine at me when I come to the house and want to know what's been keeping me. Mebbe I've done a good 30 miles to locate the trouble, through wind and rain and snow and sleet and everything else.

"Id just like to take some of the subscribers with me on some of my trips once and let 'em see what this job is like. I'll bet it would open their eyes and make 'em be nicer!"

Isn't there a real hint in this little talk of this repairman? Wouldn't it be a good business plan for the telephone companies to take methods of showing subscribers the human interest features of the telephone business?

Emphasize Human Phases in Publicity.

What's the matter with running advertising or printing booklets emphasizing the human phases of the great telephone business instead of always steering away from these features in all the advertising and publicity issued by the companies?

For instance, suppose that a repairman kept a diary of his daily work. Of course no repairman does so, but it would be easy to fix up some such diary from daily talks with the repairman as to what he had done during the day. And suppose this diary was arranged in attractive language and then published in the company's advertising space in the daily newspapers under some such heading as this:

"When your telephone went bad!

"Here's the authentic record of the experiences of one of our repairmen. Perhaps it was *your* telephone on which he was working during one of the strenuously busy days told about in this diary.

"Read this interesting record. It is one of a series of advertisements telling about the human element of the telephone business. You'll find them all interesting and entertaining."

Wouldn't the publication of such an advertisement have the tendency to make all subscribers more lenient in their uncompromising attitude toward delays in returning the service to normal conditions when repairs become necessary?

Isn't it a fact that the more the public appreciates the human element in the telephone business the more it will be tolerant toward the telephone company?

Acquaint Public With the Business.

And isn't it a fact that whenever a subscriber does happen to think of the human element in the telephone business he thinks almost exclusively of "central"? Isn't it a fact that the ordinary subscriber has only a faint conception of the infinite amount of work involved in maintaining the service in addition to the work of the operators? And why wouldn't it be good business to acquaint the public with some of these phases of the business?

How about the accounting department? How are records of long distance calls kept correctly? What are some of the nerve-racking experiences of accountants who fail to be correct in their work?

Everyone who has ever talked over long distance and who has idly wondered how it was that he always got the right bill for his call, would be interested in a human interest story on this important topic of the company's activities.

What sort of mail comes to the desk of the general manager? What are some of the problems that he must solve? How does the human equation enter into his end of the business?

How about the operators in the public pay stations? Surely they could tell stories of absorbing interest regarding the little eccentricities and doings of the general public. And if these stories were written up in an inoffensive but interesting and entertaining manner it would be an easy matter to educate the

public through them to a more appreciative use of the stations.

The telephone business teems with human interest. It has romance, adventure and excitement. And yet to look at an average telephone company's publicity, no one would ever get a glimpse of this fact. The ordinary publicity matter of an ordinary telephone company is so very lacking in this human interest slant that it would seem as though the injection of this slant would, by its very novelty, make people sit up and read the publicity with more interest than ever before.

Other industries find that the human interest in their businesses is a splendid theme for exploitation and promotion purposes. And it looks as though the telephone companies might find the same thing true of their businesses.

Telephone Aids in Capture of Stolen Automobiles.

The telephone is now playing a very important part in the apprehension of automobile thieves in San Francisco. Some months ago a police outpost was established on Sloat boulevard, at the boundary line of San Mateo county and San Francisco county, which is used exclusively for the purpose of apprehending stolen cars.

A telephone booth has been erected at this outpost, and is connected by a direct wire with the telephone switchboard of the detective department in the San Francisco Hall of Justice. Other telephone lines connect the hall of justice with each of the police stations located throughout the city.

As soon as the report of a stolen car reaches any of the police stations, every other station is notified by telephone, and at the same time the man in charge of the outpost on Sloat boulevard is given all details, such as the make of car, etc. As soon as the man in charge of the outpost is notified, he runs a Ford automobile into the center of the road, and stops all cars of the make that was reported stolen.

This system is a great improvement over the old method of apprehending stolen cars. The outpost is located on the main outlet from San Francisco, and, out of a total of 77 cars stolen during the month of July, all but three cars were recovered, which is thought to be the best record of any city in the United States.

One of the accompanying photographs shows the officer receiving a call from San Francisco, informing him that a car is stolen and the other shows the outpost and the officer in charge, there being three officers on duty during the entire 24 hours, each officer working in eight-hour shifts.

From the outpost the officer has an excellent view of the boulevard in both directions for many miles, and the telephone transmitter is provided with a long cord, so that the officer can stand in the doorway of the telephone booth, while receiving instructions from San Francisco.

Outside connections can be made through the operator in the hall of justice.

Officer Is Being Informed That a Car Has Been Stolen—Police Outpost for Apprehending Stolen Cars.

Communicates By Wireless Using Ordinary Desk Telephone.

The first conversation by telephone through the ordinary central and wireless with a man in an airplane was carried out successfully in London on August 20.

A member of a London shipping firm, using an ordinary desk telephone, was able to give instructions to one of his air pilots flying across the English Channel to Paris.

Connection was first established with the Croydon airdrome, and it was then switched through to the air ministry's wireless installation. The caller was able to hear the whizzing propellers.

Additional Circuits Constructed in Pacific Coast Region.

A construction crew of the Pacific Telephone & Telegraph Co., consisting of 18 men with traveling camp equipment, recently arrived at Auburn, Calif., on the last leg of its journey of installing two additional telephone circuits between Sacramento, Calif., and Reno, Nevada, and one additional circuit between Auburn and Lincoln, Calif.

The crew is under the supervision of Ben Brown, of Sacramento, division superintendent of construction, and the outfit consists of five portable bunk houses complete, with showers and kitchens attached.

Approves Expenditure for Improving British Service.

Sanction has been granted for the expenditure of $50,000,000 in the extension and improvement of the British telephone system. It was shown that from information given to a deputation that interviewed the post office officials arrangements were being made for extensive improvements to the service.

It is proposed to build 20 new exchanges in London and 60 in the provinces in addition to extending the present exchanges. Thirty-eight plans for laying underground cables in all parts of the country have also been drawn up.

Personal *versus* Technical Service

Physical or Technical Elements Cannot Take Place of Personal Service in Telephone Business—Discussion of Vital Factor of Personal Service from Viewpoint of Traffic Man—Presented Through Courtesy of Telephone Topics

By N. C. Loud

Service Supervisor, New England Telephone & Telegraph Co.

It used to be said, and often is said now, that he is a good man who does what he is told to do. This statement is only a half truth, if, in fact, it is even that. It is a comparatively easy thing to perform our duties when specific instructions have been given us on how to perform them. The real test of ability comes when we have to handle that part of our work for the doing of which no definite rules can be laid down—when we have to meet the unexpected situation.

Well, you are saying just about now, what has that got to do with personal service or technical service? Let us see. As a body of employes we are privileged to be engaged in furnishing the public something that is necessary for its welfare and success—yes, sometimes for its very existence. That "something" is service,—a very broad and inclusive term. Sometimes, however, I think we are prone to look at it in a somewhat narrow sense.

As traffic employes, haven't we been accustomed to think that when we have answered a subscriber's line signal, put up his connection, or given him some kind of report, we have given him service?

As commercial employes, haven't we had too much of the feeling that we have served a subscriber sufficiently when we have taken his application and collected his bills?

As plant employes, have we not been in the habit of thinking that our whole duty to the subscriber was simply to install his physical telephone equipment and keep it in working order?

Such thoughts are perfectly correct as far as they go, but they do not go far enough. It is our duty to do such things as are mentioned, but we can and should do more if we conceive "service" in its fullest and proper sense.

From Traffic Viewpoint.

As I am a traffic man, I think you will pardon me if I unfold what I mean by confining my references to the traffic department. As a department, the traffic has certain things to work with to enable it to furnish service to the public. They may be classified under three general headings:

Physical equipment, such as switchboard; technical equipment, such as rules and methods contained in operating practices; and personal equipment, its employes.

The game of developing and harmonizing these three elements in the interest of giving service is an exciting and interesting one to play. Any one who has been in the business only a moderate length of time can recall the wonderful strides that have been made in improving the type of board. When we see the latest type and compare it with the older types of boards, it does not take us very long to be convinced that a decided improvement has been made.

When we consider the technical factor —the operating rules and methods—a little reflection tells us that the same history of intelligent development obtains. Long phrases have been replaced with shorter ones; some phrases dispensed with altogether; and other phrases reconstructed to be more apprehensible and satisfactory to the subscriber.

But no matter how efficiently or satisfactorily the physical or technical element has been cared for, either one or both cannot take the place of the personal element. The former are useless without the latter. If the employes do not use the equipment and rules so that the company has the good-will of its patrons, the providing of service to the public is fast becoming a failure.

Of necessity in operating such a large business, the chief requisites of which are speed and accuracy, instructions must be followed to produce results. But these prescribed routines have been developed so finely that the field of further develapment is becoming narrower and narrower. Where are we, then, to look for further progress? Only one place—in the personal equipment. This field knows no bounds or limitations, because as yet no bounds or limitations have been found to human ingenuity or resourcefulness.

It is not sufficient to see that a subscriber's signal is answered promptly and that his calls are handled according to our drafted routine. When I use the word "sufficient" I use it from the subscriber's point of view. There may be a doubt—a perfectly reasonable doubt in his own mind—about a report that he has received from us. So he endeavors to seek for a little more information.

He appeals to the supervisor, the chief operator, or, perhaps, the manager. He knows of no other place to go. In just such an incidence is the occasion for personal service found. Although he may have received, according to our standards, service that was reasonable and above adverse comment, if at this time he is not handled properly, he is apt to judge our work and service to him by the treatment he receives with respect to this particular request. We have to be careful lest we lose his good-will. We must consider the patron at the other end of the line. And not in a charitable sense only, for in the long run the subscriber's best good is our best good also.

The Personal Service Idea Effect.

Only a little thought will prove the truth of this assertion. How quickly you notice the atmosphere of a business house—a department store, for illustration. There is as much difference in the feeling you experience in dealing with two great concerns as that you have in dealing with an obliging person and an unobliging one.

With one concern you feel at home. There is a spirit of good-will permeating everywhere. You have no doubt that the employes are glad to serve you if they can and are desirous of pleasing whether you buy or not.

With another concern, you feel ill at ease. There is a sense of carelessness, indifference, and antagonism about which makes you feel that you are not welcome and that your absence is preferable to your presence. The employes cause you to feel that they are doing you a favor in letting you see the goods and a chance to purchase them with your own earnings. Does it take you long to decide which concern you will do business with?

The explanation that you are attracted to one place and not to the other is that the personal service idea is being put into effect. The employes realize that what redounds to the welfare and good of the customer redounds also to the welfare and good of themselves. They are out to render a service in a personal and pleasing way.

Opportunities for Personal Service.

Every employe of the company has a continual succession of occasions in which to bring out the personal quality of service. Each time the subscriber is spoken with offers an excellent opportunity, not only in the content of what is said, but especially in the manner of saying it. If he senses that you have

his interest in view and that you are considering it from his personal vantage point, he will feel that he is receiving service in its largest sense even though he does not obtain the specific thing he seeks.

But I hear you saying: "I don't believe such a thing can be done. I have rules and instructions to go by which cannot be broken. I have to live up to them and do as I am told. I haven't any chance to inject a personal touch."

I agree with you that he is a good man who can do as he is told, but I challenge you with the statement that he is a better man who can and will do more than he can ever be told by words. I refer to more not in the sense of quantity but in the sense of quality.

You can give two men the same set of rules and instructions. One man will consider them only so many words to be repeated parrot-like in the same way on any and every occasion. Another will take the same set of rules and instructions and make them live and carry a helpful message of sympathetic and intelligent explanation. In the first instance, dependence is placed on technical service; in the second instance, dependence is put on personal service.

Illustrations of this fact are seen closely at hand every day. Have you not ridden in an automobile when riding was a displeasure? The driver never missed any holes or bumps in the road, or never failed to keep you guessing as to whether he was going to run over a coal team or squirrel next. He starts the car with a jerk and stops it with a double jerk.

Then have you not ridden in the same car, or one just like it, with another driver? How much more smoothly it was operated by the second driver than by the first! Rough places in road were avoided. No unevenness in starting, running, or stopping.

Why the difference? Was it the car? No. Was it the road? No—simply the driver. Both drivers followed instructions as far as the technical operation of the car was concerned, but only the second had found and made use of the personal element.

Personal Initiative the Solution.

I hear some one saying: "Well, I think you are right. We ought to give attention to developing the service with a personal touch. But how shall we go about it?"

The opportunities for personal service are so varied that it is not possible to chart any specific course, and this very fact is what makes the course so interesting and worth while. There is, however, one great fundamental asset that will be of use to us in helping us make port. I refer to personal initiative.

The word "initiative" itself comes from the Latin, and means "go into" or "begin." Note that there are signs of activity in this word, "*go* into," not "pushed or pulled into."

When a situation arises in dealing with subscribers that rules cannot cover, "begin" or "go into," finding some way, without being told exactly how, of handling it to the mutual interests of the company and subscriber. Every new set of circumstances demands new methods and new ideas for adjusting them. But a good supply of initiative will always produce the methods and ideas that are needed.

Did you ever stop to think that it is initiative that has brought about the greatest part of progress in the world? If Columbus had not had initiative would he have discovered America? If Mr. Bell had not possessed initiative, would we have been blessed with the telephone today? In like manner, if we do not possess and cultivate initiative, we shall not make much progress in rendering personal service.

There is a possibility that you will say that you haven't the ability to carry out any such program. I disagree with you, for I believe that none of us has begun to use a tithe of the ability we possess. The trouble is not that we do not have such a quality but that in most of us it is lying dormant and inactive. Many of us are actually asleep as to the actual ability we are the possessors of. The power that we think we lack, and are looking for outside of ourselves, lies coiled up within us. The only thing we need to do is to realize it and make use of it.

There is an unworked mine of opportunity to expand the personal service factor in the conduct of our business. Every wide-awake employe has an earnest desire to improve the product we are turning out—telephone service. Personal initiative on the part of each one of us will help us to effect such an improvement. It will do more: It will make our work distinctive—and that is the highest and best characterization that we can hope to receive from the public.

Western Union Installs 100 Telephones at San Francisco.

The Western Union Telegraph Co. has recently completed extensive changes in the equipment of its main offices at 722 Market street, San Francisco, Calif. One of the most important features of this equipment was the installation of 100 telephones. The accompanying illustration shows the private branch exchange over which telegrams are telephoned to private homes or business offices. Tele-

P. B. X. Board with Special Equipment for Handling Telephoned Telegraph Messages.

grams are also received at this exchange from private homes and business offices.

There are also a large number of telephones for transmitting messages to and from branch offices throughout the city, which has been found to be very accurate and satisfactory, working in conjunction with the pneumatic tube system. The tube system carries the heaviest volume of business between the main and downtown branch offices, the telephone carrying the traffic to a large number of smaller and more distant branch offices.

Just recently 52 noiseless typewriters were installed in the telephone department which has greatly lessened the noise. These were put in with the object of providing every major and minor facility to secure the maximum efficiency of operation. Special signaling devices to call the operators' attention to calls on various circuits and to switch calls from one position to another have been installed.

A novel feature of this equipment consists in the belt conveyors for delivering the messages from the telephone room to the main distributing on the floor above the telephone room. Electrically-operated belt conveyors run in front of every telephone operator, both those receiving and those sending messages, and convey every message entering the room to the distributing center.

At this distributing center there is a slow-moving belt on which the messages from the telephone room (from the pneumatic tube system, from the Morse, and the multiplex) are deposited by the various conveyers. A line of girls sit in front of this slow-moving belt and sort out the telegrams, and then place them on one of four conveyors, according to their destination. These conveyors deliver the messages to the transmitting operators.

Messages received on the Morse and multiplex machines, are conveyed to the distributing center, where the messages that are to be telephoned, are sorted out and placed on the conveyor that delivers the messages to the telephone room, which are then telephoned to private homes and business houses.

In the accompanying illustration the belt conveyor that runs in front of the telephone operators is shown at *A*. This belt conveyor travels 250 feet per minute, each belt being driven by an individual electric motor. In order to guard against the delay of a message in passing over the conveyors, two men are employed whose sole duty consists in constantly going around the room, stopping each belt in turn for a few seconds, lifting it up, looking under it to see that no message has slipped out of place, and then testing it to see thaf it runs freely and then starting it again.

A very novel method has been employed in carrying the messages up to the second floor where the distributing center is located. This method is shown at *B* in the photograph. There are double belts, both rising, which clasp the message between them. *C* shows the conveyor to the telephones to and from the branch offices.

Telephone Companies Use Thousands of Motor Vehicles.

Thousands of automobiles and motor trucks are being used by the telephone companies of this country for supervision, maintenance, installation and repair work, according to a recent survey made by the National Automobile Chamber of Commerce.

It was found that every telephone company in the country has its passenger vehicles for supervising work. These are usually roadsters or runabouts and are frequently equipped with tool boxes so that minor repairing can be handled on the spot. Trucks are used extensively for heavy repair work and for new construction.

The New York Telephone Co. is the leader in number of cars and commercial vehicles used in its industry. It has a fleet totaling 935 of which 637 are runabouts and 68 are ¾-ton trucks. The Southern New England Telephone Co. operates 46 trucks. The various types of motor vehicles in the fleet are as follows:

Runabouts	637
Delivery cars	51
Touring cars	11
Roadsters	8
¾-ton trucks	68
1-ton trucks	31
1½-ton truck	1
2½-ton trucks	56
3-ton trucks	32
3½-ton trucks	14
5-ton trucks	18
10-ton (trailers)	2
	935

The second largest user is the Bell Telephone Co. of Pennsylvania which has a total of 514 passenger cars. Figures have been obtained from a number of the larger telephone companies showing the number of passenger cars which they operate. The figures for 10 of the heaviest users are:

Company	No. of Pass. Cars Used
New York Telephone Co.	656
Bell Telephone Co. of Pennsylvania	514
Pacific Telephone & Telegraph Co.	204
Chicago Telephone Co.	170
Southern New England Telephone Co.	157
Iowa Telephone Co.	120
Southwestern Bell Telephone Co. of Missouri	96
Wisconsin Telephone Co.	89
Nebraska Telephone Co.	51

Telephone "Brokers" in Japan Raise Their Prices.

The Kobe, Japan, correspondent of the Chamber of Comerce Journal, London, Eng., writes, under date May 13: "Methods of trade here are too advanced. In England it is still very largely the rule for a man to trade with his own capital. In Japan, never. Every conceivable trade and industry is carried on with advances from the bank and every conceivable commodity has its broker. For instance, there are in Kobe numbers of telephone brokers.

There is a great demand for telephones in Japan. The supply of them is a government monopoly and the average time between applications and installation is ten years. When anybody gives up his telephone he can transfer it to somebody else.

This is where the telephone broker comes in, and he knows the pulse of the market so well that, whereas before the war it was easy to get a telephone for £100, it is no uncommon thing to pay £300 now.

The telephone is, indeed, an important gauge of business prosperity. When the slump came last month, telephones dropped sharply, probably in anticipation of many businesses closing up; but the fall has not continued, so apparently there is confidence in business continuing to exist, even dully. The prices which have declined were purely artificial and it is possible that the slump will do a great deal of good. It would be a good thing if it only diminished the number of brokers and reduced things to something like their real value."

Big Increase in Telephone Saturation in Population Centers.

That the telephone has had a remarkable growth in this country during the past ten years is quite generally acknowledged. The average person, however, does not realize the extent of this growth until he is confronted by comparative statistics.

Figures recently compiled by the American Telephone & Telegraph Co. show that the number of telephones in use has increased 64 per cent in 13 population centers in the past ten years. The comparison, which is shown in the following table, is based on the 1910 and 1920 censuses. It should be explained that these telephone areas in many cases include places other than the city after which they are named, and the population and telephones in these outlying places have, of course, been included. For this reason the population figures will not always agree with those reported by the United States Census for the cities named in the statement.

City	Population of Area	No. of Tel.	Telephones per 100 Population Jan. 1 1921	June 1 1910
New York	5,621,000	845,890	15.0	7.9
Chicago	2,701,000	554,114	20.5	10.0
Philadelphia	1,824,000	199,650	10.9	7.1
Boston	1,652,000	272,244	17.4	9.1
Detroit	1,125,000	134,491	12.0	11.3
St. Louis	1,029,000	92,603	9.0	6.7
Cleveland	904,000	109,371	12.1	6.6
Pittsburgh	880,000	110,647	12.6	8.2
Baltimore	734,000	79,011	10.8	7.1
Los Angeles	642,000	136,598	21.3	....
Cincinnati	594,000	90,485	15.2	9.8
Buffalo	533,000	65,042	12.2	6.0
Milwaukee	525,000	74,153	14.1	8.6
San Francisco	520,000	143,318	27.6	16.0
Newark	491,000	46,543	9.5	....

For the 13 centers of population for which figures appear covering both years, the number of telephones per 100 of population averaged 8.8 in 1910 and 14.5 in 1920, or an increase of 64 per cent.

Lincoln Company Gains 2,200 Stations.

The August report of the Lincoln (Neb.) Telephone & Telegraph Co. shows a total of 118 exchanges with a total of 64,699 stations. This represents an increase, since January 1, of 2,213 stations, a third of which are in Lincoln, the largest exchange operated and owned by the company. Nineteen exchanges show losses during that period of a total of 76 stations, while 99 show increases totalling 2,289.

Sundry Snapshots Along the Trail

Observation and Comments, Pertinent and Otherwise, On the Sunshine and Shadows of Telephone Work

By Well Clay

When one has been away for a year and a day;
Roaming strange lands afar.
Then gets off a ship and starts on a trip
Back to where the old folks are.
There's no movie reel can show how you feel,
As memories throng through the brain;
Days long gone by pass through your mind's eye,
As your thoughts spring ahead of the train.

You picture the spot where stands the home cot
With shady green trees all around,
And all the old places and familiar home faces
Where your childhood days' joys were found.
The scenery outside quickly backward doth glide,
But there's nothing you see or you hear.
The one wish in your brain is to step off the train
And greet those that to you are most dear.

One of the chief delights in going away is said, by some people, to be the joy of the homecoming after a season of absence from the old life. No matter where we roam and what we see, there are none of the marvels of Nature or entertainment of man, that can quite equal the pleasurable thrill that pervades one's system at the moment when we actually "start back."

The same feeling is present after a long absence from an accustomed vocation when it may chance that once more we are called upon, or have opportunity to renew the familiar duties. How we recall and exultingly put into play all the old knowledge of the game; but our broadened mind ranges far over the kaleidoscopic experiences of our absence for new ideas to utilize to bring our work a little nearer perfection.

True, however, we never quite come back in just the same frame of mind as that in which we went away; neither do we find things just as we left them. At least, they look different, as they did to the small boy who went to visit a few miles from home, and, though he was gone but a day or so, suffered all the pangs of acute homesickness. So long did it seem that he was gone on account of the dragging hours until he was home again that he was sure he had been gone an age. Walking through the barnyard with his dad on his return home, he remarked to his father: "Well, Dad, things have changed, but I see you still keep the same old dog."

A little vacation is good for us and should result in good for our work after it is over and we are again in the harness—especially at this time of the year when the weather begins to cool and one feels like work. The roads are generally good in September and any line activities can be prosecuted with greater ease and profit. Especially is this true of new construction, when one can get deliveries of materials at somewhere near a normal rate.

The flocks and fields of the farmer have yielded their yearly quota for market and table, and the squawk of the suddenly-siezed rooster is heard at the chopping block at more frequent intervals than at other times of the year.

The crops are off the fields for the most part and the fall work on the farm is in full swing. Changing work in threshing and corn shredding and other autumn work on the farm, requires quite a bit of inter-communication among rural business men and then, if never before, the need of a telephone becomes apparent. The increased need is reflected in increased orders for telephones at a time when they are most easily installed.

After an interval of many months when we have been holding off on extensions on account of war, finances and labor, it seems good to get back to the fascinating sport of building rural extensions. The demand is a great way ahead of the supply and one does not have to spend much time in soliciting additional patrons. A woman asked me last week: "How is it that you used to beg farmers to put in telephones and now we have to beg you to build us lines?"

They not only have to do the soliciting, as it were, now, but are willing to turn in and help haul poles and do other such work, to push the thing along—until their telephone is in and connected up.

There is much in the work of building rural extensions now that is different than a decade ago and the manner of installing the instrument has changed considerably. In the old days, all one thought necessary was to bore a small hole through the wall and attach it to the telephone already in place. Now, as is the practice with many, the instrument is the last thing to put in place. Instead of twisted drop wire, it has been found advisable to run separate weatherproof wires under cleat and knobs, and through porcelain tubes where they enter the buildings.

The necessity for protecting the wires with tubes in many places has been the recent change in house construction in which metal lathing is used and which, when combined with the modern method of using a flax or felt lining between the studding for purposes of warmth, makes a fire almost certain at the first thunder shower. So little spark is necessary to set the tinder-dry filling aflame that I have observed this summer a case where not even a smut showed on a modern carbon lightning arrester at the pole, yet the flax backlining caught afire from a spark, which jumped from the drop wire to the metal lath, and was consumed for many feet before going out from lack of air back of the plaster.

The practice of wooden washers back of the telephone is also modern and helps to overcome the inequalities of the plastered wall as well as furnishing a place to conceal the wires back of the instrument. They also leave a space behind the telephone to allow a circulation of warm air in winter when the outside wall is cold and otherwise causes a deterioration of batteries from lowness of temperature.

Modern construction is more costly but it is worth more, and better service is more apt to result with fewer breaks in times of stress of weather. In modern times, a patron wants his service all the time, especially on the farm where a sudden need may mean a drive of many miles in case of failure to get the desired connection immediately, perhaps obliging him to leave a member of his family in distress while doing so.

Fall construction is easier too, for the reason that spring rains have been drained from the soil and there are fewer marshy or muddy places to contend with. Take it all in all, there is no better season for outside work on the lines (in Minnesota) than the months of September and October, and in some years, November. Labor costs more, as a rule, but there are fewer interruptions from weather and roads, and more headway can be made.

One man to stake the lines and install the instruments, two men to dig the holes, nail the brackets and set the poles, and two men to string the wires (afternoons), make about the right-sized crew in this country to build bracket lines and shorter loops profitably. The two wiremen can spend forenoons in shooting trouble and other work and keep the wire strung close behind the diggers.

The diggers can, with little practice, be taught to guy the poles as they go along.

thus relieving the wire men who can fill in more acceptably at other work in these times of labor shortage. They can all "fill in" when it comes to the table at the average farmhouse, and the good meals one runs across at the average table in rural districts are not the least fascinating part of the game.

APHORISM: The best time to eat is when dinner's ready.

Storm of Protest Over Elimination of "Time" Service.

The Lincoln (Neb.,) Telephone & Telegraph Co. is the storm center of a public discussion following its announcement that on September 5 it proposes to dispense with that part of the information service which has to do with the giving of the correct time to inquiring patrons.

The company is accused by citizens whose convenience is thus disturbed with having advertised this service as one of its attractions when it was in competition with the Bell in Lincoln, and that this action is arbitrary and unfair. They also insist that the company has given the service so long that it may be fairly assumed to be a part of the contract of service.

The latter declaration is regarded by company officials as something remarkable in view of the fact that none of its subscribers scruple about quitting the service whenever they please regardless of the contracts they have signed, and that persons signing new contracts having no knowledge of the "time" service that the company has been giving could hardly be said to assume that it was included therein.

The company officials say they have been forced to take this step because of the abuse of the service, and that discontinuance is made at this time because, with the beginning of school, the facilities will be overloaded by the demands of school children. These run into the thousands, each child being apparently desirous of staying home and playing as long as possible and calling up two or three times to make sure that time enough remains.

Critics of the company's course want to know why it does not set aside certain parts of its equipment for the giving of the service, while others say that if it is a matter of cost the public will be willing to pay a few cents additional to retain this service. Along with the elimination of the "time" service also goes the abolition of the alarm clock or waking up service.

General Manager L. E. Hurtz has tried patiently to explain to the public that it isn't a question of the few hundred dollars a month extra cost that giving the service now adds to expenses, but purely a service proposition. The exchange is built for normal peak loads, but not for those peaks where the demand for service centers entirely upon one spot in the central office equipment.

Between 7 and 9 in the morning and 12:45 and 2 in the afternoon the calls for "time, please?" are so numerous that no other information service can be given, all that the other inquirers receive when they get "information" is a recitation of the hour and minute.

In an automatic exchange each 100 stations is a miniature exchange in itself, with ten trunks between the 100 groups ample for ordinary use. With thousands of calls for "time" coming in at the same time, says Mr. Hurtz, any person seeking to use the exchange finds his path to the person with whom he desires to communicate blocked owing to the fact that all of the trunking facilities are in use to give "time service."

As the company's first obligation is to furnish communication between those who rent telephones for that purpose, Mr. Hurtz contends that when additional service interferes with the giving of that communication the company must stop it. That is what he is doing.

He insists that as the telephone exchange exists primarily to furnish facilities for communication, it must eliminate everything that prevents free use of the facilities for that purpose. If a street railway company were to manufacture and sell light and power as a by-product and it interfered with giving prompt car service, the public would be quick to demand that it get out of the light and power business.

Mr. Hurtz says that it would cost the company less money to furnish each subscriber with a clock and keep it regulated than to rebuild the exchange to add the necessary trunking facilities.

UTILITY PRICES AND RATE OF RETURN.

(*Continued from page 16.*)

yield from January, 1920, to May 1, 1920, was found to be 5.75 per cent, thus showing that even the highest grade first mortgage public utility securities have recently been selling at a price which would yield the investor a full per cent more income per annum than could be obtained from the same class of railroad securities.

A further tabulation covering the average yield on nine second class public utility securities—that is, bonds rated by Moody as B, BA, BAA—during this same period, showed that they sold at a price which would have yielded the investor, had they been bought between April, 1919, and December, 1919, 6.58 per cent. Had they been purchased at the average market price between January, 1920, and May, 1920, they would have yielded 7.20 per cent, the yield on this class of securities being almost a full point above that afforded by the highest grade public utility security.

Since the seasoned bonds of our largest public utility corporations rated by reliable investment houses as bonds having the highest grade of security, can be bought on a yield basis of 6.75 per cent and those of the second class on a yield basis of 7.20 per cent, it would scarcely be expected that new securities of public utility companies could be sold on even as favorable a yield basis as that afforded by a seasoned second grade bond.

Experience shows that new securities of the highest grade cannot be sold for the same price that a similarly secured bond, that has been seasoned, can command. Thus, a company endeavoring to raise money through the issuance of new securities, is handicapped at the very start by the fact that the securities it is offering are new and unseasoned. In addition to this, the new securities of a going concern seldom rank as high in regard to the security behind them, as do the seasoned issues secured by a first mortgage on the property.

New issues usually compete with the yield afforded by second grade or junior issues, and even in competition with such issues, new securities are at a disadvantage. The extent of the disadvantage in this regard is convincingly shown by a comparison of the yield basis on which new securities of public utility corporations have been offered at, between January 1, 1919, and May 15, 1920.

A study of the yield afforded by the principal representative offerings of public utility securities to the public, of $1,000,000 or over, in the period mentioned, was found to be as follows:

Cost of Money to Public Utility Corporations, Excluding Marketing Profit to Underwriters.

Date.	Yield Per Cent.
January 1, 1919, to July 1, 1919....	6.86
July 1, 1919, to December 1, 1919.	6.90
January, 1920	7.10
March, 1920	7.59
February, 1920	7.11
April, 1920	7.62
May, 1920	7.83

These figures were compiled from a list of bond underwriters issued by the Standard Statistics Co. in its weekly service and from the Commercial & Financial Chronicle.

Since the signing of the armistice, interest rates the world over have been gradually rising at an accelerating rate The weekly statistics issued by Brookmire's Economic Service in their pamphlet entitled "Brookmire's Forecaster," dated May 17, 1920, throws some interesting side-lights on current interest rates and the changes that have taken place within the last few years.

Sixty-day money, N. Y. Stock Exchange, in May, 1913, was 3½ to 4 per

cent. Two years ago it was 6 per cent. For the week ending May 15, of this year, it was quoted at from 8 to 8½ per cent. Discounts prime four to six months, New York, were 5¾ to 5½ per cent in May, 1913; 5¾ to 6 per cent two years ago; 7 per cent, May 15.

How rapid the increase has been since January of this year, is shown by statistics taken from the same source. Four to six months prime discounts New York, were 6 per cent in January and 7 per cent in May of this year. Sixty-day money, New York Stock Exchange, was 7 to 7½ per cent in January and 8 to 8½ per cent in May. This tightening of the money market is reflected in every class of security in the world—U. S. government bonds have been selling at a price to yield the investor in many cases, in excess of 6½ per cent.

This situation is not due to any question or doubt as regards the security involved, but is primarily indicative of the tremendous demand for capital funds. The war depleted the capital equipment of the world to such an extent that, at present the supply of funds available for investment in permanent improvements i totally inadequate.

How seriously this situation is handicapping new improvements of public utility corporations is well illustrated bv the following quotation from the Wall Street Journal:

Chicago Telephone Co. Withdraws $10,000,000 Note Application.

The Wall Street Journal, April 12, 1920, stated that President Sunny has informed Illinois Public Utility Commission that Lee Higginson & Co., and five leading Chicago bankers jointly bid 94½ per cent for the company's proposed issue of $10,000,000 three-year 7 per cent notes, or yield basis of 8.99 per cent, which is a prohibitive price for public utility credit and, therefore, the company has withdrawn its application to issue these notes for needed improvements this year. The company placed a similar amount of notes with the syndicate a few years ago slightly above a 5 per cent basis.

When the cost of money to a public utility property is specifically considered at the present time, it must be realized that the cost of money to industry in general does not necessarily determine its cost to a public utility corporation.

Capital does not flow as freely in actual practice as it might theoretically be supposed, it is flexible only within narrow limits. The total capital fund available for investment at any time is not in active competition for all types of investment. Capital is controlled by various individuals and moves only in accordance with their preferences and prejudices. These preferences and prejudices are the determining factors controlling the flow of capital into the various fields of investment.

Psychological forces play a very important part in the cost of money to industry. Very often the actual security behind a given investment proves to be of less importance than is the popular opinion regarding the security held by a large group of investors. In other words, the attitude of the investing public towards a given type of investment often becomes the dominant factor controlling the price of money in that field.

Of the total fund of capital available for investment in the United States today, there is only a given amount available under any circumstance for railroads, public utilities, industrials, farm loans, real estate loans, certificates of deposit, savings bank accounts, stocks or government bonds.

It is an established fact that there are thousands of individuals having considerable investment capital at their disposal who would under no circumstances purchase a corporation security, even a very high yield would not attract them. An illustration of this is found in the ability up to just a few months ago of the Federal Land Bank to float its farm loan bonds on a yield basis of 4½ per cent at a time when tax-free government bonds were being offered on a yield basis of close to 6 per cent.

Investigation has shown that in a large measure these bonds were purchased in small lots by farmers and residents of small towns, individuals whose income is so small that the tax-free covenant in these bonds would have no particularly attractive force. There are likewise thousands of individuals in the United States who have a strong preference for 6 per cent real estate loans—still others have a strong preference for municipal securities. The result is that there are millions of dollars of available investment funds in the United States that would under no circumstances compete in the market for corporation bonds.

There are several reasons determining this attiude of mind in regard to investments on the part of thousands of people in the United States. Regardless of the causes producing this attitude of mind, the important factors to be considered under the present circumstances are the existing facts. It is quite obvious, from the abnormally high price that public utility corporations have been compelled to pay for capital recently, that investments of this type are rather generally considered as less desirable than many classes of investments.

There are two factors that seem to have been dominant in producing this situation:

Public utilities because of their special and privileged position in the past took, in some cases, undue advantage of this position. The result was that thousands of small investors lost heavily in investments of this type. In other cases, some few public utilities abused their semi-monopolistic position and charged an excessive price for their services.

Public opinion finally revolted and there was enacted various restrictive legislation which so limited the control of public utilities over the selling price of their services as to place them entirely at the mercy of various rate-making bodies.

Each of these two forces has had its period of ascendancy and, as a result, most public utility properties in the United States are in difficult financial straits. They are hampered by restrictive legislation and are suffering from what amounts in many instances to a financial boycott on the part of the investing public.

Our problem today is to meet the existing situation. The abuses and prejudices of the past must be overcome. Public confidence in our public utilities must be restored. The service they render is a necessity. This service is in a large measure, fundamental to the proper development of industry as a whole.

To attempt to punish all utility corporations for the sins of a few corporations in the past, is not only folly but may result in a national calamity. It is a policy of cutting the nose to spite the face. Public utilities can be punished only at the expense of the general public. The survey covering the investment field for public utility securities has clearly shown how serious the situation is at the present time.

Every effort should be made to improve conditions lest the public be denied those services and facilities to which it is entitled. No improvement in this regard can be expected until public utility properties afford as an attractive a field for capital investment as that offered in other fields of business enterprise.

Extensive Improvements Under Way at Greenfield, Ind.

The Greenfield Telephone Co., Greenfield, Ind., has erected about 3,000 feet of new cable, and installed new cable terminals. The company is now engaged in dismantling the open wire leads in the business districts and cutting the cable in service.

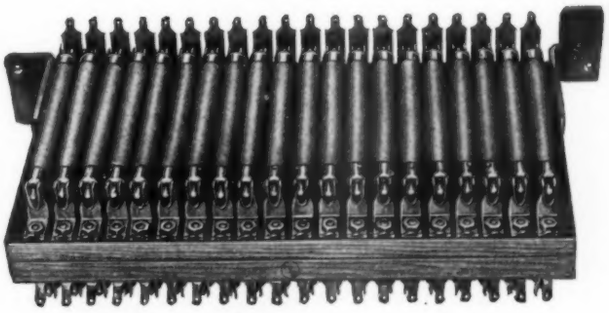
The remodeling of the interior of the company's building will be under way in a short time in order to arrange for the installation of a new toll board. After the board is installed, the old toll room will be converted into an employes' restroom.

Telephone Lines Under Construction in Montana.

Work has been commenced by the Eastern Montana Telephone Co. on the construction of 104 miles of telephone line to connect Miles City, Mont., with points south almost to the Wyoming state line.

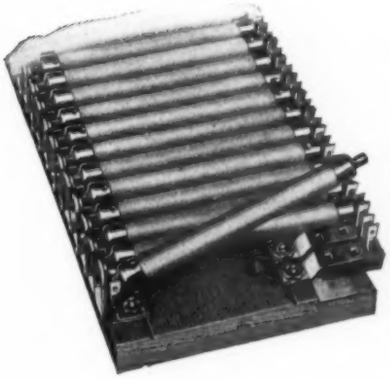
Pole House Protector Strips

That Give Relief From Fuse Contact Trouble

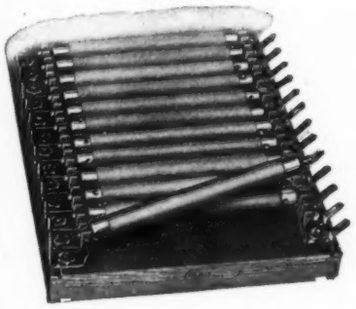


No. 827
For 100 and 200 Pair Pole Houses

No. 927



No. 727



No. 727
For 25 and 50 Pair Pole Houses

Fuse Clips That Bite Through Corrosion to the Clean Metal

No. 27 Fuse—Full Size

A. Contact points bite into fuse ends insuring good contact even if fuse end is corroded.
B. Cable soldering terminal is formed deep into slot to prevent turning.
C. Screw is soldered to cable wire terminal to insure perfect contact.
D. Fuse clips are readily removable.
E. Lock nut binding post for attaching drop wires.
F. Projection on fuse clip fits into groove to prevent turning.

Protect your telephone service as well as your employees and property.

Reliable Electric Company

3145 Carroll Avenue, Chicago, U. S. A.

Let Trucks Solve Your Problems

Telephone Companies All Over the Country Find Motor Trucks a Solution to Their Service Problems—Southern New England Telephone Co. Selects the White as Best Adapted to Its Needs—Company Now Has 29 in Service

The demand for telephone service all over the country—in rural as well as city communities—is greater today than ever before. But increased volume of business also means greater difficulty in maintaining service, the commodity which telephone and telegraph companies sell.

The demands have become too exacting for the limited speed and endurance of the horse. Hence it has been supplanted by the motor truck, whose greater speed, endurance, larger capacity and versatility render it capable of maintaining almost continuous service in and around and between communities.

The most important phases of service are: Transportation, installation, operation. Telephone companies need trucks to carry supplies from factory to exchanges and to surrounding areas of construction, to convey men and supplies from one exchange or area to another, as well as to places of construction along highways between communities.

The tendency to solve the perplexing problems of service with motor equipment is typified in a big way by the case of the Southern New England Telephone Co., whose headquarters are located at New Haven, Conn. With an operation area covering all of the 5,000 square miles in the state of Connecticut and including more than 700 communities, the Southern New England company does all of its maintenance, construction and repair work with motor trucks.

Having decided that the greatest efficiency and economy lay in determining the truck best suited for the company's needs and standardizing, Robert Hunter, supervisor of motor vehicles, selected the White. Twenty-nine of them are already at work. Others will gradually replace 10 machines of six different makes, which the company still owns.

Twenty-six of the trucks in the fleet are 2-ton models, two are 3-ton and one is a ¾-ton. The 3-ton models, equipped with winches, are used much of the time for setting poles. They, as well as many of the 2-ton trucks, are often used for construction work of the heavier type, hauling cross arms, glass and wire and carrying towing poles.

The ¾-ton model is used for general delivery purposes, to rush men and materials about and to haul from jobs where speed is required. In this work it runs as high as 100 miles daily, much farther than the heavier trucks which, because of the nature of their work, are often standing although the engine is kept running to operate the power winch. Therefore the mileage per gallon of gasolene on these heavier jobs cannot fairly be compared with the record in any other line of commercial business.

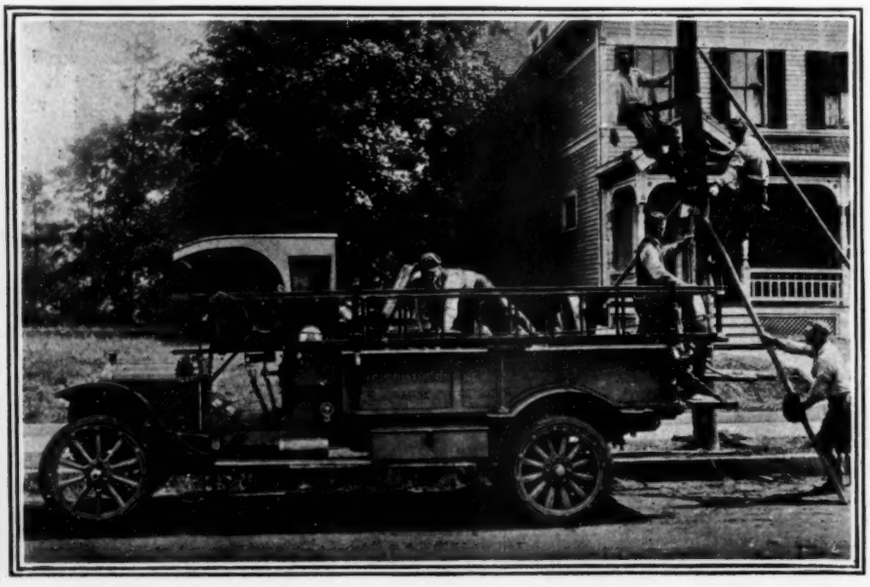
Where a winch truck can be used, three men and the truck driver can easily set a pole, company officials say. As many as eight men are required where the winch is not used, depending on conditions and the size of the pole.

A Group of White Trucks Used by the Southern New England Telephone Co.

Connecticut has been divided into 16 stations or areas, centering about the larger cities, such as Hartford, New Haven and Bridgeport. With the exception of the area about New Haven, where the scope of the work is greater, trucks working in each area have a territory of about 20 miles in radius to cover.

Garages are maintained at New Haven and Hartford, where repair work on trucks is done. All overhauls, however, are made in the New Haven shop, which is more completely equipped. In smaller areas, where it has been found cheaper to rent garage space to accommodate the few trucks operated than for the company to establish its own garage, major repair work is done by mechanics sent out from nearby company garages. A complete stock of parts is kept in each garage.

"The number of parts which must be kept in stock are much fewer since we have standardized on one make of truck than when we operated a half dozen makes," Fleet Supervisor Hunter pointed out. "In addition to this advantage, our mechanics naturally become more expert through specialization than was possible when they



The White Two-Ton Truck Is a Favorite with Telephone Companies.

"Stewart" Direct Reading Test Cabinet

Any company that has $400.00 trouble expense or more per year can save $100.00 per year with a "STEWART" Test Cabinet. Tells distance to trouble. Any telephone man can operate it. Sent on trial. Write today.

ALSO—Test Sets, Detecto-Meters and Cable Testers. When in need of testing apparatus, write us.

STEWART BROTHERS
Ottawa, Illinois

BONITA AERIAL CABLE RINGS

These "hand placed" cable rings cannot creep or move on the strand after attachment

BONITA AERIAL CABLE RINGS combine ample holding power with ease of installation. Not even a cable pull will displace them from their position. Yet they can be easily removed after years of service and may be used over again.

BONITAS are quickly and securely attached by hand—the easiest and most satisfactory method.

BONITAS are made of high carbon, semi-spring steel, and will last for years. Made in six sizes.

Write for Samples and Prices.

CAMERON APPLIANCE CO.
84 Waters Avenue - - Everett, Mass.

Note Protection at Corners

Blake Insulated Staples

Unequalled for telephone and bell wiring. The fibre insulation prevents troublesome short circuits and grounds.

4 Sizes **Pat. Nov. 1900**

Write for Samples

Blake Signal & Mfg. Co.
BOSTON, MASS.

Why sacrifice your old equipment for new?

Don't imagine that because some of the parts are commencing to wear that you must replace.

"We can save you money" because we can repair your apparatus—or replace worn out parts, and will guarantee you satisfaction.

At least when you are situated that it must either be "old" or "new" apparatus let us show how the old can be continued serviceable. Pack up your parts, whether one or twenty pieces, and ship to the

Suttle Equipment Company
Olney, Ill.

The Arrester with No Dissatisfied Customers

HAWAII TELEPHONE COMPANY

Hilo, T. H. July 21, 1919.

L. S. Brach Supply Co.,
127 Sussex Ave., Newark, N. J.

Gentlemen:—Regarding the use of your arresters, I would say we use them principally for protection of Repeating and Phantom coils which are mounted in boxes on poles a number of miles from the telephone offices and that we never had to go near any of these coils that were protected with your arresters, whereas we formerly had to clean the carbon blocks and occasionally replace a burned out coil when the old style carbon arresters were used, after each thunder storm.

We have also installed your arresters on a No. 10 copper metallic trunk line sixty-six miles long going over Kilauea Volcano; these were installed at an altitude of 4000 ft. to drain static from this line, in which they have been successful.

Very truly yours,
HAWAII TELEPHONE CO.
W. D. Stone, Manager.

Write for Literature on Brach Vacuum Arresters

L. S. Brach Manufacturing Company
NEWARK, N. J.

STANDARD Telephone Cables

are guaranteed as to their unexcelled dependability by long and successful service. They represent the greatest advancement in telephone cable manufacture.

Write our nearest office about your requirements.

Standard Underground Cable Co.
Pittsburgh, Pa.

Boston Philadelphia Chicago
New York San Francisco St. Louis

were put to work on a different make of truck every few days."

By an accurate checking and double checking system, the Southern New England Telephone Co. keeps tab on the work done and the daily expense incurred by every truck in its service. Comparisons brought out by these records were instrumental in the decision to standardize on White trucks.

London Continues Experiments in Wireless Telephony.

Experiments in wireless telephony continue to be the order of the day in London, the latest "stunts" being a newspaper message from sea and a newspaper assignment to a reporter in the metropolis, the latter carrying his own aerial and receiving set.

The wireless telephone message from the liner Victorian to the London newspaper office was quite a success. The message was heard in London as it was being dictated from the deck of the liner 550 miles away to a reporter at the Cornwall station.

The newspaper representative said that he spoke into an ordinary telephone transmitter at the Poldhu station in Cornwall and conversed for some minutes with the passengers on the Victorian which was bound for Quebec. The conversation was interrupted by S. O. S. calls from an American vessel that was in trouble off the Bishop Rock, Scilly Islands.

The other wireless telephonic test was of a different nature. A reporter for the Daily Mail walked across northwest London carrying a small dispatch case containing a Marconi six-valve amplifying listening-in set. There was no pre-arrangement as to time, place or the nature of the message except that the reporter was to be prepared for a wireless telephone call at any moment. The reporter had no expert knowledke of telephony of the wireless sort and the instrument was handed to him at his office with but few words of explanation.

The reporter kept his "mustard plaster" aerial under his coat. It was a light loop aerial and invisible under a buttoned coat. Two flexible wires connected the aerial with the dispatch case which contained the amplifying detector, a condenser, and high and low tension batteries. To the upper end of the loop aerial was attached the ordinary disc telephone receiver.

From time to time as the reporter walked he put the receiver to his ear and tuned in by turning a handle that protruded from the case. Suddenly the reporter heard the message from the Victorian to Poldhu station. Then, as he says, with a suddenness that made him jump, a voice from the receiver said: "Message to the Daily Mail reporter somewhere in the metropolitan area." And the message was to the effect that there was a fire in an East London synagogue and that the reporter was to get the facts at once, first acknowledging receipt of the message.

The reporter duly gathered his facts and returned to his office to write up an account of his wireless telephonic assignment.

The Victorian used the most powerful telephone yet installed in a passenger ship and transmitted on a 1,800-2,400 meter wave-length. Two wireless concerts were arranged, the Chelmsford (Essex) station giving the first on a 3,500 meter wave-length and Poldhu (Cornwall) station the second.

Biographical and Personal Notes

Edwin P. Weber, city foreman for the Two Rivers Telephone Co., of Two Rivers, Wis., has been engaged in various branches of telephone work for the past 15 years. Obstacles do not discourage Mr. Weber, for he delights in figuring out ways and means of meeting new problems and surmounting difficulties; in other words, he likes to plan things and then see the plans work out.

E. P. Weber, City Foreman of the Two Rivers Telephone Co., Two Rivers, Wis.

Being quite methodical in his ways, he is always looking for the quickest and most efficient way of doing a thing. He has a good capacity for ascertaining the facts of any particular case and of sticking at it until he obtains them.

He's the type of man who can develop into the all-around man capable of making a success of any business, for he has practical business judgment of a constructive nature, is a hard worker and will figure out all the "whys and wherefores" of a proposition and will then see it through.

E. E. Garrison, plant chief for the Murphysboro Telephone Co. at Carbondale, Ill., resigned August 15 to take up farming near Harrisburg, Ill.

Louis Smithing, of Scranton, Pa., has been appointed local manager for the Bell Telephone Co. of Pennsylvania at Bethlehem.

Raymond K. Smith, superintendent of equipment for the Warren & Niles Telephone Co., operating some 5,000 stations at Warren, Ohio, and vicinity, is a Hoosier by birth, his arrival having been recorded in the town of Albion on July 12, 1886. After graduating from the high school of Zanesville, Ohio, he worked his way around the world on English tramp steamers.

After scouring the world for a period of nearly two years, Mr. Smith entered the service of the Indianapolis Telephone Co., of Indianapolis, Ind., at the age of about 19.

He later became local manager at Elwood, Ind., and subsequently of the Cit-

R. K. Smith, Superintendent of Equipment for the Warren & Niles Telephone Co., Warren, Ohio.

OUR EXTRA HEAVY DOUBLE GALVANIZED WIRE INSURES

HIGHEST EFFICIENCY
LONGEST LIFE
LOWEST COST OF UPKEEP

It's easy to determine, TEST IT. As wire will test best, so also will it last best and give better satisfaction while it lasts.

We guarantee our wire to conform with all standard specifications as well as to be satisfactory to the purchaser.

IT'S THE ONE BEST PROVEN BY TEST—*TRY IT.*

Handled by most representative jobbers and supply houses.

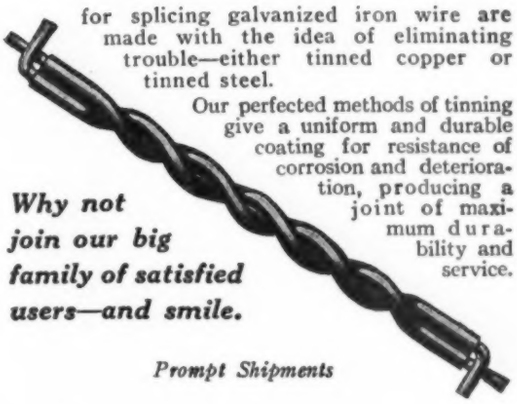
Write for samples, test and compare.

INDIANA STEEL & WIRE COMPANY, MUNCIE, INDIANA, U. S. A.

Your Troubles Are Many

these days, but there is no need to add sleeve troubles to them.

NATIONAL SLEEVES



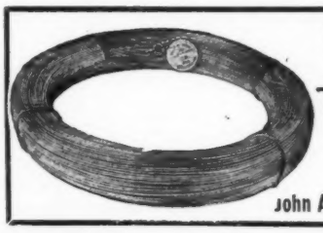
for splicing galvanized iron wire are made with the idea of eliminating trouble—either tinned copper or tinned steel.

Our perfected methods of tinning give a uniform and durable coating for resistance of corrosion and deterioration, producing a joint of maximum durability and service.

Why not join our big family of satisfied users—and smile.

Prompt Shipments

National
TELEPHONE SUPPLY CO
5100 SUPERIOR AVE., CLEVELAND, O.



ROEBLING
Double Galvanized
TELEPHONE WIRE
E. B. B., B. B. and Steel Grades
John A. Roebling's Sons Co., Trenton, N. J.

"NAUGLE" POLES
Plain or Butt Treated. Largest Stocks.
READY FOR IMMEDIATE SHIPMENT
NAUGLE POLE & TIE CO.
Main Office: 50 E. Madison St. CHICAGO

Duluth Log Company
POLE SERVICE
Duluth, Minnesota

NORTHERN-WESTERN
CEDAR POLES
A FULL ASSORTMENT OF SIZES
PROMPT SHIPMENTS ASSURED
T. M. PARTRIDGE LUMBER COMPANY
Lumber Exchange MINNEAPOLIS

Grinnell, Ia. Spokane, Wn. **B. J. CARNEY & CO.** Minneapolis Chicago
Northern and Western
POLES
"We Soak the Butts in Creosote"
WM. MUELLER & CO.
General Sales Office: 519 Adams Express Building
CHICAGO

NORTHERN CEDAR POLES WESTERN
BUTT-TREATING GUARANTEED GRADES
BELL LUMBER COMPANY, MINNEAPOLIS, MINN.

THE B-R ELECTRIC COMPANY, Kansas City, Mo.
Telephone Construction Material, Equipment and Supplies
Distributors
LEICH Telephones, Switchboards and Ringing Machines

DRIVE & TWIST ANCHORS

Extra heavy.
No breakable parts.
Easily and quickly installed anywhere.
Hold firmly.
No soil to *move* or *remove*.

Ask the supply salesman!

GUND MFG. CO.
Jay Street, La Crosse, Wis.
"The Anchor that Anchors"

izens Water & Light Co., of Winchester, Ind.

After some experience with the Home Telephone & Telegraph Co. of Los Angeles, Calif., and with the Kellogg Switchboard & Supply Co. in its installation department, Mr. Smith became affiliated with the Warren & Niles company in his present capacity on August 1, 1918.

"R. K." is the type of man who would make an excellent salesman, for he is adaptable and knows exactly how to say the things which please. Being strong for comparing one thing with another and having good commercial instincts, it does not take him long to see the business possibilities of an article and show it to others.

Having a good understanding of human nature and a good deal of force, confidence in himself and stick-to-itiveness, combined with the ability to express his ideas smoothly, he can convince others to his way of thinking—all of which qualities are required of the salesman and sales manager.

Mr. Smith is a member of the Warren Auto Club and the Masonic Lodge.

Obituary.

Charles E. Hollander, general manager of the Newark Telephone Co., of Newark, Ohio, was killed in an automobile accident Thursday evening, August 26, when he and some friends were hurrying to catch the 8:15 train for Newark after playing golf at the Country Club near Coshocton.

While rounding a curve, the driver was blinded by the headlights of an approaching machine and in "pulling to the right," struck the curbing along the roadway. Mr. Hollander, who was standing on the rear end of the running board, was struck on the temple by one of the trees along the road, knocked off the running board and killed almost instantly.

Mr. Hollander's many friends in the Independent field, especially in the state of Ohio where he was very well known and highly esteemed, will regret to learn of his tragic death.

As general manager of the Newark Telephone Co. for the past 18 years, Mr. Hollander was one of the dominant factors in the success of that company and witnessed its growth from a small system operating two exchanges and 600 telephones to a system of five exchanges and over 6,000 telephones, two of the exchanges, Newark and Granville, having automatic operation.

Chas. E. Hollander, General Manager of the Newark (Ohio) Telephone Co., Who Was Killed in an Automobile Accident Last Week.

Born in Brookline, Mass., 46 years ago, Mr. Hollander was educated in the public schools of that city and later entered and graduated from the Massachusetts Institute of Technology. After several years experience in electrical construction work, he served as superintendent of construction for the Columbus, Buckeye Lake & Newark Railway, having charge of the electrical construction of the interurban line between Newark and Columbus.

It was at this time that he attracted the attention of the directors of the Newark Telephone Co. Although not a telephone man, strictly speaking, he was an all-around public utility executive and expert. The directors of the telephone company felt that he was just the man they wanted to manage the Newark system and on July 16, 1902, elected him manager of the company.

During Mr. Hollander's administration, the system has experienced a growth of 350 telephones per year, on an average, until now it operates over 6,000 stations, as mentioned previously, with a comprehensive toll system in Licking county.

Mr. Hollander was one of the live wires of the Newark Rotarians, a member of the Elk lodge, of the Newark Country Club, and Golf Club, and one of the most progressive members in each of these organizations. During the war he was an ardent worker in the cause of the United States against the central powers, and participated in each of the campaigns conducted in his vicinity and made his presence in the organization decidedly felt.

The members of TELEPHONY's staff join with Mr. Hollander's many friends in the telephone field in extending their heartfelt sympathy to his widow, formerly Miss Mary Hale, of Newark.

OPPORTUNITIES (Continued From Page 43)

HELP WANTED

WANTED—Two linemen not afraid of work; $125 per month salary and expenses paid while in country. Write or wire at once. Good place for the right man. Eastern Ky. Home Telephone Co., Pikeville, Ky.

WANTED—Troublemen, Linemen, P. B. X. Installers and Switchboard men. Exchange of 10,000 subscribers in North Eastern Ohio. Address Ohio State Telephone Co., Canton, Ohio.

WANTED—Combination cable man and lineman; steady employment and good pay to the right man. Position open Sept. 15. Address Home Telephone Co. of Cairo, Cairo, Ill.

POSITIONS WANTED

POSITION WANTED—by experienced wire chief with company of one to five thousand subscribers. Best of references. Central States preferred. Now employed. Address 4343 care of TELEPHONY.

POSITION WANTED—With a progressive company. City not less than 10,000 population. As manager or in a capacity requiring efficient and economic supervision, both of a technical and administrative nature. Address 4264, care of TELEPHONY.

POSITION WANTED—Having disposed of my interests, am at liberty. Had thirteen years' practical general experience; desire western location as manager. Best of references. State all in first letter. Address 4339 care of TELEPHONY.

POSITION WANTED—as wire chief or manager and wire chief in smaller place, by technical graduate now employed. Experience in both construction and maintenance. Mo. preferred. Address 4342 care of TELEPHONY.

POSITION WANTED — District plant chief; man of ability who has had 19 years' experience in plant maintenance with one of the large operating companies. Can furnish references. Address P. O. Box 1673, Atlanta, Ga.

POSITION WANTED—Young man twenty-four years old and married would like a permanent position. Thoroughly familiar with installing and maintenance of manual central office, private branch, and sub-station equipment; is at present holding supervisory position. Reason for change, position is not stationary. Address A-99, care of TELEPHONY.

WANTED TO BUY

WANTED—Telephone Exchange of from 500 to 2000 telephones, in middle or western states. State size, location, and price first letter. Address 4310, care of TELEPHONY.

WANTED—One 100 drop capacity American Express Type Switchboard, less cords, plugs and talking circuit. Address Daviess County Tel. Co., Gallatin, Mo.

WANTED TO BUY—Used compact telephones, Monarch, Stromberg, or Kellogg 4-bar, 100 ohm, bridging. Address 4312 care of TELEPHONY.